

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER

BARGAINS IN BOOKS

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See Red-Bordered Announcement

In this Issue.

American Carpenter and Builder

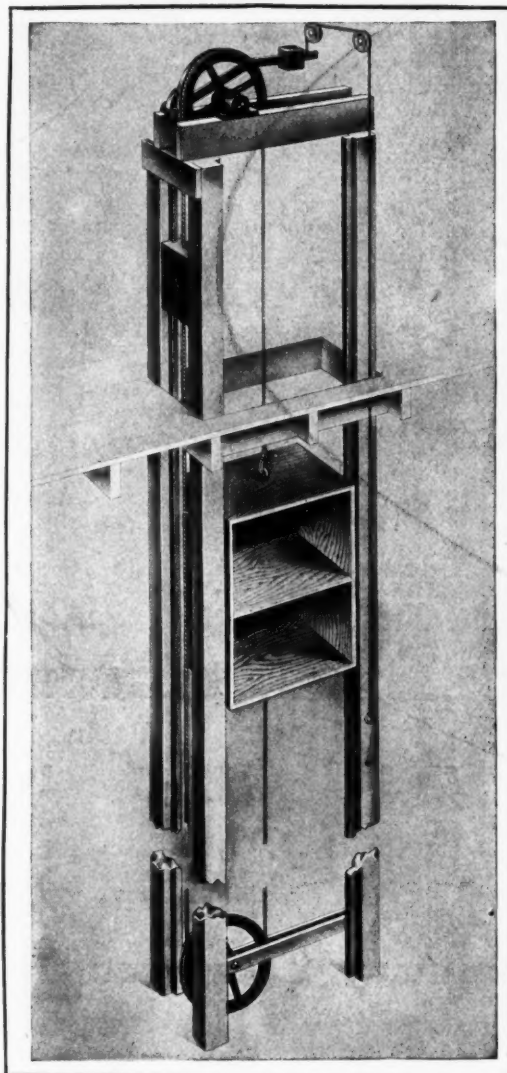
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**COMPLETE
DUMB-WAITER**

WE
WILL FURNISH
READY TO ERECT
OUR
No. 0
STANDARD
DUMB-WAITER
PER
ILLUSTRATION
AND
SPECIFICATION
HEREWITH

ABOVE PRICE IS
**F. O. B.
MOLINE**

CAPACITY
25 LBS.
FOR
3 STORIES OR LESS



SPECIFICATION

CAR-BOX
2'x2'-2'6" HIGH
WITH REMOVABLE SHELF

SHEAVES
ONE LIFTING
ONE IDLER
BEARINGS

BRAKE
AUTOMATIC TYPE

ROPES
ONE MANILA LIFTING 1"
ONE BRAKE ROPE 3/4"

COUNTERWEIGHTS

GUIDE POSTS
FOR CAR AND WEIGHTS
3 1/2" x 3 1/2"

GUIDE STRIPS
FOR CAR AND WEIGHTS
1" x 1"

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FOR OVERHEAD SHEAVE

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FOR SETTING UP

A VERY SATISFACTORY MACHINE FOR QUICK SERVICE WITH LIGHT LOADS

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OTIS ELEVATOR COMPANY

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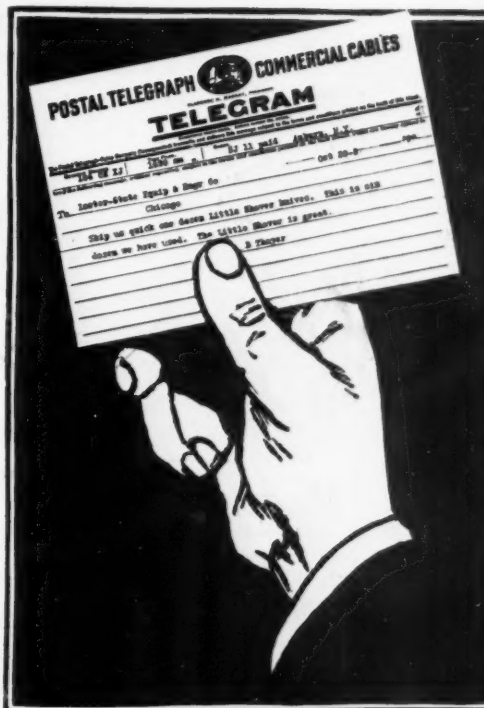
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WE MANUFACTURE A COMPLETE LINE OF ELEVATORS & DUMB-WAITERS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

"Little Shaver"Floor
Scraper

You can sharpen
the blade without
removing it
from the
machine.

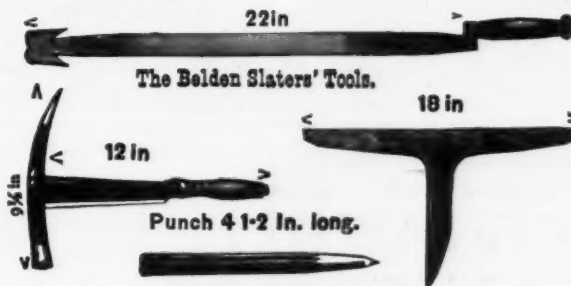


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Inter-State Equipment & Engineering Co. Old Colony Bldg.
CHICAGO

TOOLS FOR SLATERS MANUFACTURED BY BELDEN ARE GUARANTEED

Their superiority over others is acknowledged by thousands of users. Made-to-order steel used in their manufacture adopted only after most careful experimenting gives them their value.

ONE HAMMER
ONE RIPPER
ONE STAKE
ONE PUNCH
Constitute a Set



OUR HAMMERS
are perfectly balanced and are
provided with

Leather Handles
to prevent hand from slipping

Our Tools Bear an
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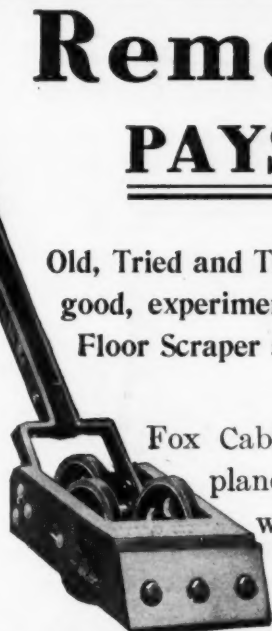
If Your Dealer Cannot Supply
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THE BELDEN MCH. CO., Whalley Ave. and Tryon St.
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**Fox
Floor
Scraper
No. 1**

A Perfect
Machine
for
Perfect
Work.



Old, Tried and True. None to equal it. None just as good, experiment with others, but when you want a Floor Scraper send for the FOX.

Fox Cabinet Scraper works like a plane. A FINE TOOL for fine work. Price Postpaid only \$1.25.

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Fox Cabinet Scraper



Milwaukee, Wis.



The American Floor Surfacing Machine

is the original and only two-roll, self-propelling, dust collecting machine, protected by U. S. and Foreign patents, and the only one that will satisfactorily surface any kind of a wood floor, and has been in general use by contractors, hardwood floor companies and others for over five years.

Its work is rapid, regular, smooth and even, because the power that drives the rolls propels the machine at the same ratio of speed.

Its work has established the standard for surfaced floors, and the only machine whose work is specified by leading architects and meets the requirements of contractors, owners and hardwood floor companies for finely finished, smooth, even floors.

It has surfaced and polished millions of square feet of the finest floors in America and Europe.

Don't be fooled with an imitation, but get a machine that does work in paying quantities, and can be operated in small rooms.

The only one whose construction is guaranteed and sold on its merits.

Write for our book "Surfacing Floors as a Business."

Manufactured by

The American Floor Surfacing Machine Company
TOLEDO, OHIO

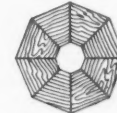
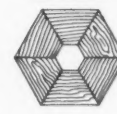
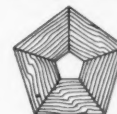
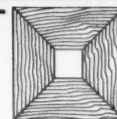


More Money, A Better Job and a Square Deal

NOTICE the A B C Protractor Square. It gives you degrees, lengths of timber and bevels of all kinds. It is a combination of five tools in one; the greatest and yet the simplest tool on the market. To use it is as simple as sawing a board off square. Stairway work is made as easy as A B C. For Octagon or Polygon work set the square in the form of the letter A. The directions are very short and plain and yet give you the full details of all the work. No more mistakes, and no Carpenter or Contractor can afford to be without the tool on a job. Manual Training Schools all over the country are adopting the square. It is a time saver as well as accurate.

Ask your dealer for them, or write to the following Jobbers for one:
MARSHALL-WELLS HARDWARE CO., Duluth, Minn.
E. C. ATKINS & COMPANY, Indianapolis, Ind.

Or send \$3.00 direct to **Crookston Tool Company,** CROOKSTON, MINN.



LATEST IMPROVED ALL IRON SWING CUT-OFF SAW

alone of its kind

Properly
Counter-
Balanced

Adjustable
Hanger

With Six Inch Adjustment

CAN BE HUNG
ANYWHERE

On the Floor
Under the Floor
On the Wall

With same ease of operation

Write for FREE Catalog
of our complete line.

LOVELL MACHINE WORKS, Gardner, Mass.



New Starrett Protractor

One of the most useful tools a carpenter ever had. See full description in free Catalogue No. 186. With this tool in your chest you can give away half a dozen or more which it will render back numbers

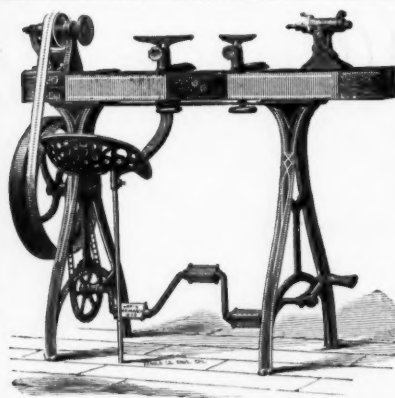
The L. S. Starrett Co., Athol, Mass., U.S.A.

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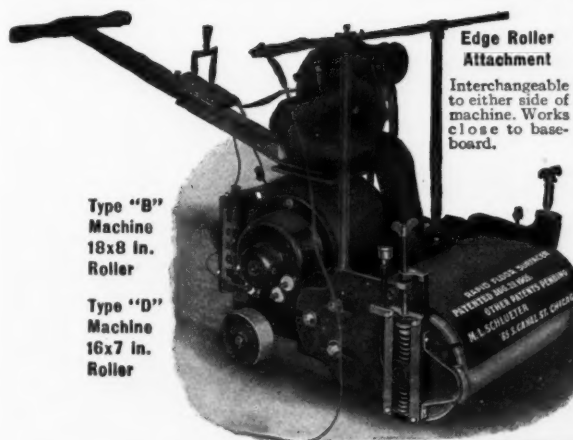
Hand and Foot-Power
MACHINERY

Our No. 3 Wood Turning Lathe can be speeded from 1,000 to 2,000 revolutions a minute with perfect ease. Stopped or reversed at will of operator.

Write for Particulars



W. F. & Jno. Barnes Co. 74 RUBY ST., Rockford, Ill.



Type "B"
Machine
18x8 in.
Roller

Type "D"
Machine
16x7 in.
Roller

Edge Roller
Attachment

Interchangeable
to either side of
machine. Works
close to base-
board.

Perfect Results Easily Obtained Schluter Rapid Floor Surfacer

Built on the only correct principle. Guaranteed to be **THE BEST** machine with which to produce an even, smooth surface on any kind of wood floor, old or new, hard or soft, and in all buildings; Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks, Reception and Dance Halls, etc. **THE SCHLUTER** will remove all joints or warped edges, and leave the floor perfectly smooth. Will remove shellac, varnish, oil, wax, lime stains or the "muck" from skate wheels in a most satisfactory manner.

WE SELL MACHINE OR SURFACE YOUR FLOOR

EASY TO OPERATE. NO DUST. Over 500 contractors are now using our Machines. Made in two sizes. We will surface your floor. Mail us size of floor, new or old, and kind of electric power. In eight hours will sandpaper 4,000 to 5,000 sq. ft. once over. Write for new prices, catalogue and our FREE TRIAL proposition.

FREE Illustrated booklet containing full information sent free to contractors.

Sandpaper the Only Perfect Way

The **SCHLUTER RAPID FLOOR SURFACER** is so constructed that a roller, to which a sheet of sandpaper is quickly adjusted, is brought in contact with the floor surface while revolving at a speed of 600 revolutions a minute. It is guaranteed to do the work cheaper and smoother than any other machine or method. This machine will surface from one to two thousand square feet in eight hours. Cost of sandpaper and electric power from \$1.00 to \$2.00 per day.

M. L. SCHLUTER 28 S. Canal St.
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"I Couldn't do without
YANKEE TOOLS"
is the sentiment of all
carpenters & mechanics

"**YANKEE**" TOOLS are as essential to a first-class outfit as a hammer and saw. They save much time and needless effort. Nothing adds more to a man's contentment and peace of mind than good, reliable and labor-saving tools like the "Yankee," and whether on day or piece-work he is bound to accomplish more and do it better.



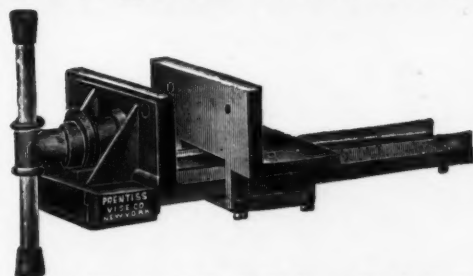
Get Our "Yankee" Tool Book

Full of new ideas in time and labor-saving tools. It's free if you mention this Journal. Will be glad to send extra copies for your men if you can use them.

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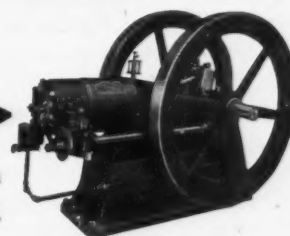
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BLAKE QUICK ACTING VISE



For Cabinet Makers and Wood Workers. Simplest—Strongest—Cheapest—Best
Send for Catalogue of all kinds of Vises
FRINTISS VISE COMPANY, MAKERS
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Power for Your Shop



Write for our
Special Proposition on
**3 H. P. and 6 H. P.
Engines**

TO CARPENTERS AND WOODWORKERS

Backed by Five Years' Guarantee

Weber Gas and Gasoline Engines

Built on the Experience of 25 Years of Good Engine Building

WEBER GAS ENGINE CO.,

KANSAS CITY, MO.

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Box 609



Ball Bearing

Woodworking Machinery

Designed Especially for Carpenters

Best combination of the lightest running, fastest cutting, strongest made, and lowest priced woodworking machines in the world





Ball Bearings

Simply saves about half the power, close adjustment which means less chattering, stands a high speed under heavy pressure and never heat. Requires less attention, oiling, etc. They have been thoroughly tested in the last eight years and found to be the most valuable feature ever brought into use in this class of machinery.

Our Rip, Cross Cut, and Band Saw is a combination of three of the most useful machines, each ready for instant use without change. Can be furnished separate if preferred. We also make heavy machinery for belt power—36-in. Band Saw, Double Table Circular Saws, Jointers, Swing Cut-Off Saws, Single and Double Headed Sand Drums and Lathes.

30 Days' Trial Offer

As a positive proof of the truth of our claims we will put one or more if you like in any shop on thirty days' trial.

If you don't think it is the **best made**—the **most economical** and **easy to operate**—**send it back**. Purchase price will be promptly refunded.

Our large illustrated catalog describing woodworking machinery for every purpose will be sent free if you ask.

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FOR RESIDENCES, HOTELS, OFFICE AND APARTMENT BUILDINGS

Absolutely sanitary, require no cleaning, never wear out or show the effects of use. Not affected by hot or cold water. The modern 20th century toilet and lavatory fittings.

PLATE GLASS TOWEL BAR



Price \$1.50

No. 141 24 inches, adjustable. Also made in 30, 36, 42 and 48 inch lengths at slightly higher prices.

Round glass towel bars, \$2.00

Adjustable glass towel shelves, \$3.50, \$4.00, \$6.00

We also sell plate glass with polished edges for table tops, any size, and glass push plates for use in fine residences and apartments, manufacture and re-silver mirrors, etc.

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Manufacturers and Jobbers of Plate Glass Specialties
281-291 W. Superior Street - - CHICAGO

CUSTOM MADE FLY SCREENS

Our work is far superior to the usual output of local mills and has a style and finish not obtainable from those who do not make a specialty of screens.

For outside screens we use the identical finish of the outside of Pullman cars.

The best grades of Wire Cloth, enameled, galvanized, genuine bronze, etc. Fastened by tacks or by the "lock-strip" process.

Intending purchasers may have free by mail samples of woods, finishes, and wire cloth and copy of catalog and price list. Agencies in many cities. Special terms to contractors and builders.

The A. J. PHILLIPS CO.

FENTON, MICH.

23 Years' Experience

3 1/2 Acres of Floors

PLUMBERS' SUPPLIES AT WHOLESALE



If you need anything in my line and wish to

SAVE

20 to 40 Per Cent on every article, write for my free illustrated Catalog. Shipments promptly made from a very complete stock of guaranteed goods.

Small orders are as carefully handled as large ones.

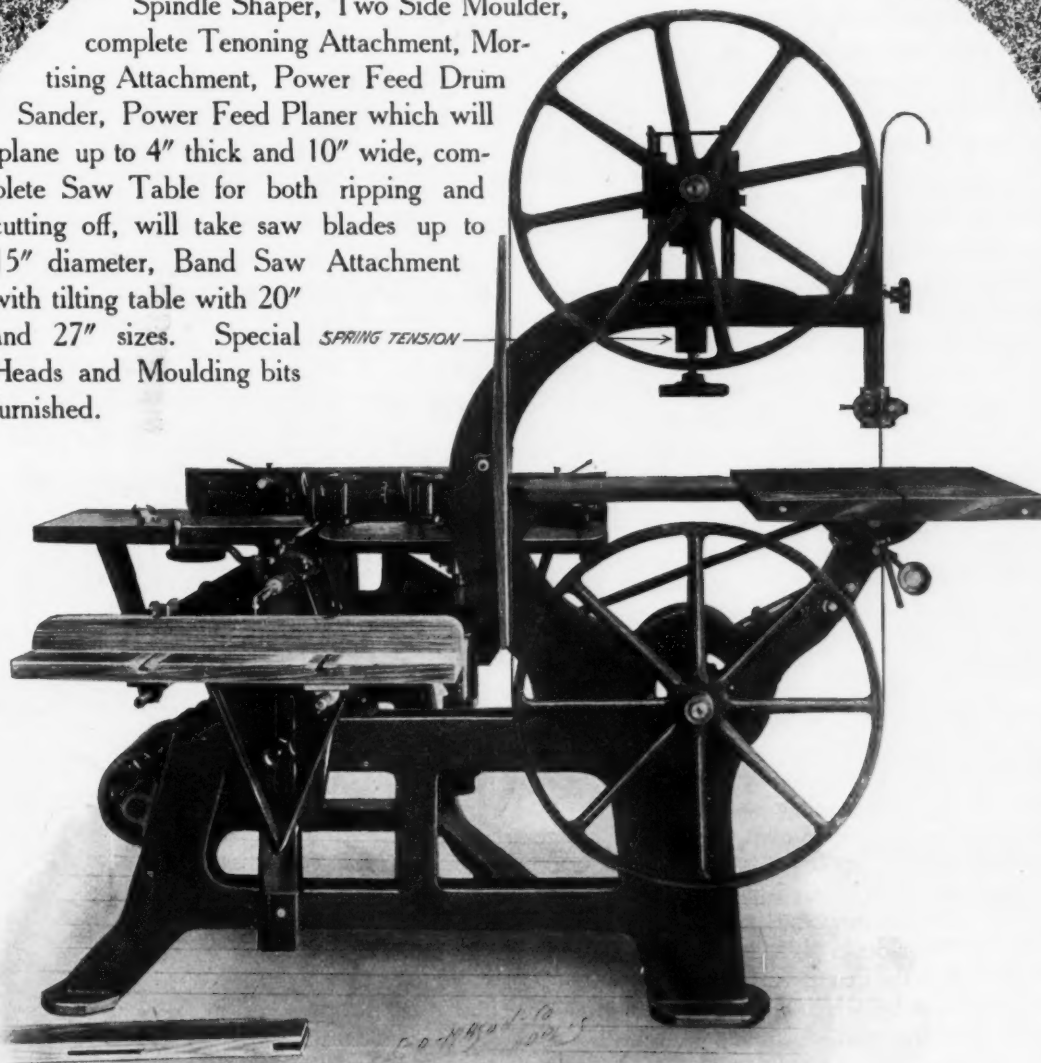
B. B. KAROL, 233 W. Harrison St., Chicago, Ill.

ECONOMY

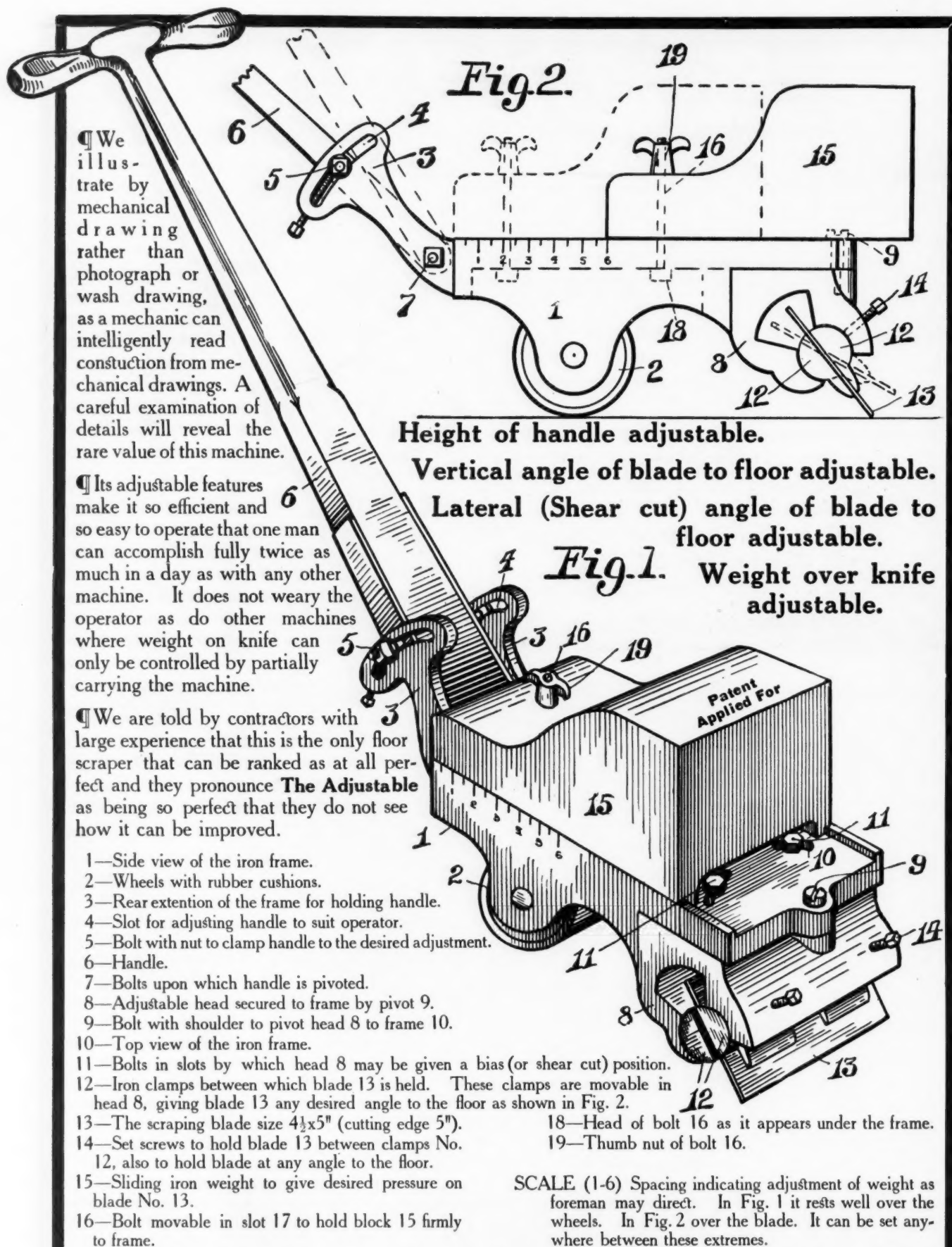
Means money for the contractor and builder. The only way to secure this is by purchasing one of our UNIVERSAL VARIETY WOOD WORKERS, the only practical wood working machine on the market today for the general use of the contracting and building trade. Write for catalogue "B" which will explain to you thoroughly the different kinds of work, and all of the different attachments which can be used on the

Famous Wood Worker

consisting of a 10" three-journal Jointer, Single Spindle Shaper, Two Side Moulder, complete Tenoning Attachment, Mortising Attachment, Power Feed Drum Sander, Power Feed Planer which will plane up to 4" thick and 10" wide, complete Saw Table for both ripping and cutting off, will take saw blades up to 15" diameter, Band Saw Attachment with tilting table with 20" and 27" sizes. Special *SPRING TENSION* Heads and Moulding bits furnished.



SIDNEY TOOL CO.
SIDNEY, OHIO.



Long Distance Telephone Mfg. Co., Floor Scraper Department
SOUTH BEND, INDIANA



The WEBER DOUBLE ACTING Floor Scraper

SEND FOR THIS SCRAPER ON FREE TRIAL

I want to send you a Weber to try for yourself. I want to have you see it so that you will know all about it. I want you to know about the Weber's forward and backward movement; about the action of the shearing cut attachment and know how it ensures perfect work even on old, parquette or cross-grained floors and about how the Weber works on any kind of wood floor.

I haven't room to tell you the complete story here; but if you will send me your name and that of your hardware dealer, I will send you one of my booklets and full particulars. Write me today.

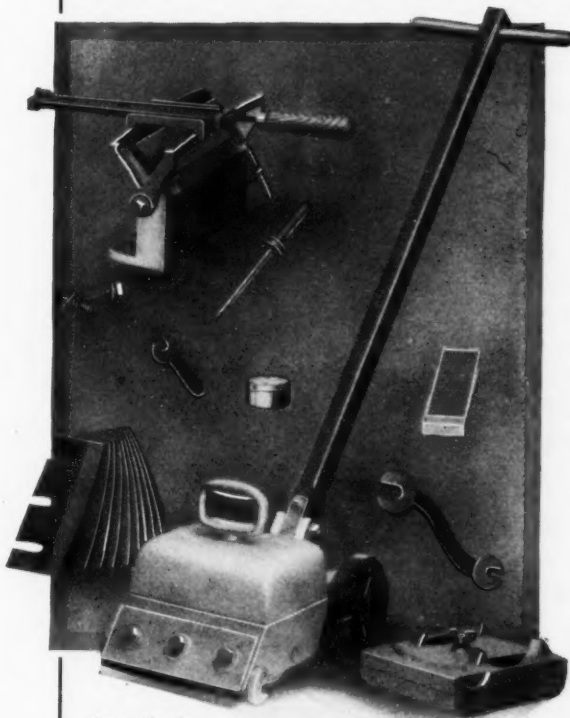


THE WEBER AUTOMATIC SHARPENING DEVICE

enables the operator to sharpen a blade without removing it from the machine. The blade can't be sharpened at wrong angle—so simple a child can use it.

JOHN F. WEBER, PRESIDENT, WEBER MFG. CO. 670 71st AVENUE WEST ALLIS, WIS.

TRY BEFORE YOU BUY



The ACME Floor Scraping Outfit will be sent on a week's free trial to any party of responsibility.

Write for particulars and booklet.

Investigate. Convince yourself by actually working with Acme machines of the merits and labor-saving features the same possess. Do it today.

JOS. MIOTKE, 249 Lake St., MILWAUKEE

"Little Giant" Floor Scraper

Sent on Free Trial
20,000 "Little Giants" are in use

throughout this country and abroad. These were purchased because they were better; because they did more work—did it quicker, cleaner and cheaper—than any other machine made. So great is our faith in its ability to prove its worth to you that we are making the following liberal proposition.

Special Terms

A request from you brings a "Little Giant" to your door—you send no money and we pay all expenses. After you have tested it as thoroughly as you know how, and have found it satisfactory, pay for it. If you don't consider it the best floor scraper in existence, return it at our expense. That's all. Won't you give it this chance today?

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HURLEY MACHINE CO.,

155 South Jefferson Street

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FAR AHEAD for Smooth, easy work and holding edge will be YOUR VERDICT ON TRYING

CHAPLIN'S IMPROVED PLANES

Patented Feb. 14, 1899; Oct. 30, 1900; Dec. 24, 1902

We invite the
Severest
Comparative
Tests



We want you to have a copy of our booklet

"A 'Plane' Talk About a Good Plane!"

We want you to have a copy, for it is a booklet you really need in your business.

We'll gladly send you this booklet with our compliments, promptly upon receipt of your request.

Tower & Lyon Company, 95 Chambers Street, New York

Carry
A Ton,
Last
A LIFETIME—

A pair of our smallest size

Wall Brackets.

There isn't room here to tell you how cheap or how convenient they are.

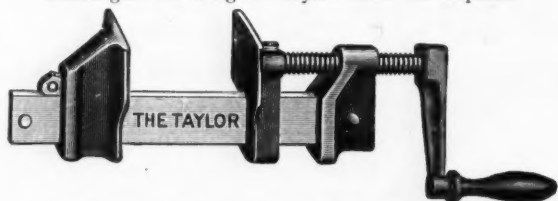
Write for Catalogue and Special Trial Offer.

ARE YOUR CLAMPS GIVING BEST RESULTS?

Do you know about our improved gripping device?

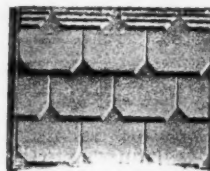
It Saves Time,
the special grade of steel we use?

Our Clamps are warranted unbreakable in use. Catalogue showing 19 styles sent on request.



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BLOOMFIELD, N. J. U. S. A.

"EASTLAKE" Metal Shingles



The roofing with a reputation has been used for more than 30 years, and still in good condition. Will last a life time.

For roofing all buildings with one-quarter pitch or more.

NEVER LEAK

They reduce the fire risk, and cost of insurance. Superior and cheaper than wood shingles. Any good carpenter or mechanic can lay our shingles.

Tools Required—
Hammer and Shears

Write for Catalogue and Prices

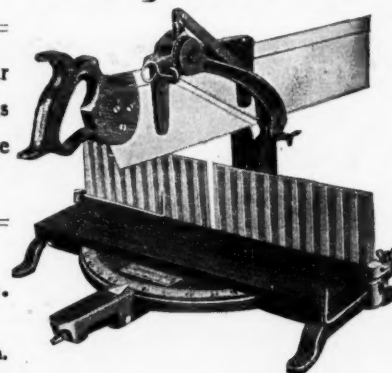
THE W. J. BURTON CO.

Manufacturers of all kind of Roof Trimmings
DETROIT MICHIGAN

Improved Union Mitre Box

Write for our Circular
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many superior features
and quotes prices.

The
Dosch Mfg. Co.
823 R. R. Ave.
Bridgeport, - Conn.



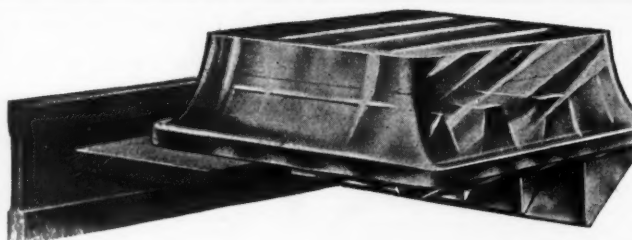
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ARE
"BEST BY EVERY TEST"

For PASSENGER or FREIGHT SERVICE in Factories, Stores and Dwelling Houses.

Our Elevators are noted for their Easy Running and Serviceable Qualities. They are practically self contained and can be erected by any carpenter in a few hours. We furnish Plans for erecting. When writing, state your requirements.

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100 Per Cent More Light

IN DARK INTERIORS BY THE USE OF

3-WAY PRISMS Prism Glass of All Kinds, Vault Lights, Window Lights, Skylights and Wired Prisms

See Pages 522-23-24-25 in Sweet's Index, at all Architects' and Builders' Offices

AMERICAN 3-WAY PRISM CO.

Catalogue on
request

184 N. 10th Ave., PHILADELPHIA

ONLY PERFECT FLOOR SURFACING MACHINE

Will do perfect job on any kind
of floor, whether even or uneven.

A Boy Can Operate It

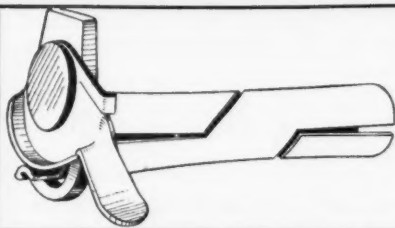
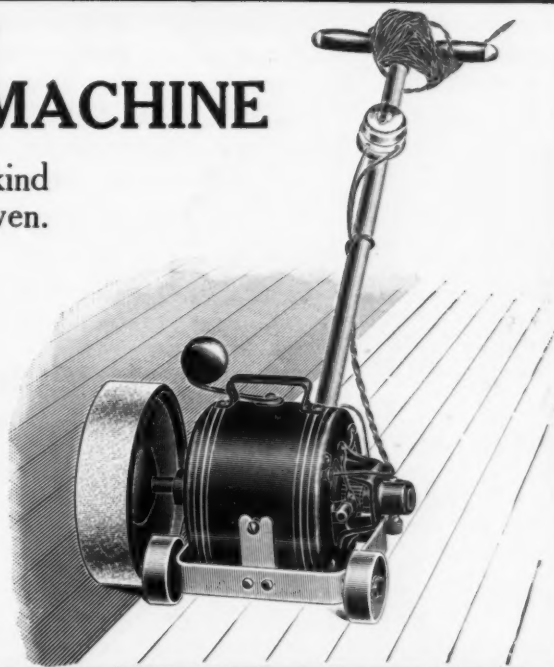
Sold on absolute guarantee. Price complete
with motor switch and 50 feet electric cord
ready to connect to light socket, \$125.00

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MARSH CO.

970 Old Colony Building,

Chicago, Ill.



THE BENCH STOP

That really *grips* and *holds* your work. After using one you don't see how you worked without it so long. Its as necessary as your vise. It sticks out from your work less than $\frac{1}{2}$ inch, is made of steel, oxidized, and will last a lifetime. Ask your dealer or order one today. \$1.00 Post Paid.

RAYNESFORD & SONS, Ellis, Kan.



Raynesford's Improved Bench Stop at Work

ACKERMANN'S LATEST OFFER!

Having perfected a device that makes it easy and simple, for even an amateur or inexperienced workman, to put an **absolutely perfect** scraping edge on any floor scraper knife, I now offer this most valuable invention free with each **Ackermann Rapid Floor Scraper**.

Real success in the use of any floor scraper depends largely upon the cutting edge maintained on the knife blade that actually does the work. No machine will do the work well unless the blade is kept constantly sharp. Up to the present time the average operator of any floor scraper made, has had much trouble in doing **good work, quick**, because sharpening the blades was very difficult.

The success of **Ackermann's New Knife Sharpener** does not depend on the skill of the operator. It practically works automatically. With it, an absolutely perfect cutting edge can be turned on any knife blade in less than two minutes. If you have had—"Knife Troubles"—in using any floor scraper, write today for our offer, under which you can test **Ackermann's New Knife Sharpener**, free of expense.

Great Free Trial Offer

We will ship you on free trial, prepaying all charges, both the **Ackermann Rapid Floor Scraper** and **Ackermann's New Knife Sharpener**. If they prove satisfactory, you purchase the machine, and the knife sharpening outfit is given you free. If not, return both at our expense. It costs you nothing to find out whether or not our claims are true. Write today.

J. B. ACKERMANN CO.,

100 Pearl St., GRAND RAPIDS, MICH.

Ackermann's Rapid Floor Scraper

is guaranteed to do more, better and easier work than any other machine on the market, or it doesn't cost you a cent. Write for our booklet today.

These arrows point to the Ackermann Knife Sharpening Device now offered free with each machine.





"A Bit Of Utility"

Guided by its circular rim—instead of its centre—the Forstner Labor-Saving Auger Bit will bore any arc of a circle, and can be guided in any direction.

Doesn't matter how hard the wood is, no consequence whether it is full of knots, or the grain awkward to negotiate. The Forstner Bit works with equal smoothness under any condition and leaves a true polished surface on every job.

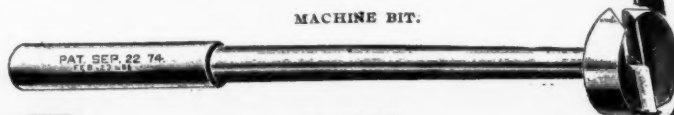
Unequaled for Delicate Work

Supersedes chisels, gauges, scroll-saws, or lath tools combined, for all kinds of delicate work. Cabinet and pattern makers and carpenters are enthusiastic because they do more work than other bits and cost no more.

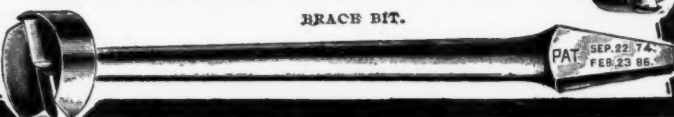
We can offer something special in the matter of price on sets packed in a sensible box. Send today for particulars and catalog.

The Progressive Mfg. Co.
Torrington, Conn.

MACHINE BIT.



BRACE BIT.



"Last a Lifetime and give Satisfaction to the End"



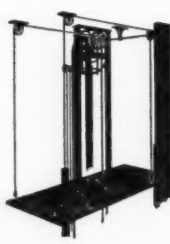
The Celebrated Barton Planes and Edge Tools for carpenters and all other woodworkers are unequaled by any other make for keen, hard, smooth cutting edges. If your hardware dealer does not handle **The Celebrated Barton Tools**, send direct for Catalog. Be sure and specify "CARPENTER'S CATALOG"

MACK & CO., 20 Brown's Race, Rochester, N. Y.

EATON & PRINCE

HAND-POWER

ELEVATORS

CORNER
LIFTCENTER
LIFT

FOLDER No. 99 GIVES FULL DETAILS



EATON & PRINCE COMPANY

CHICAGO



You Will Sell More Window-Screens If You Hang Them With

GOSSETT HINGES

No experiment. Eight years of growing sales prove them the best. Find out for yourself.

Write for Free Samples Today

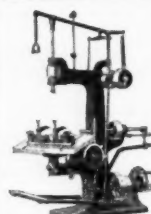
F. D. KEES MFG. CO.

Box 523

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Crescent Wood Working Machinery

Strong Substantial Durable Easy Running



Boring Machine

Band Saws Swing Saw
Planer & Matcher
Saw Tables Jointers
Band Saw Blades
Shapers Planers Borer
Disk Grinder



Band Saw

Catalog sent on application

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224 Main Street

Leontonia, Ohio, U. S. A.

Modern Cement Sidewalk Construction

A PRACTICAL TREATISE FOR THE WORKMAN

By

Charles Palliser

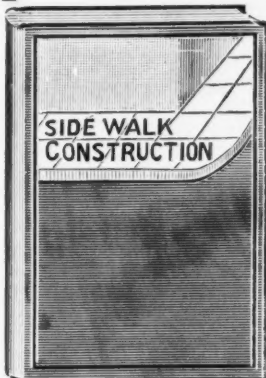
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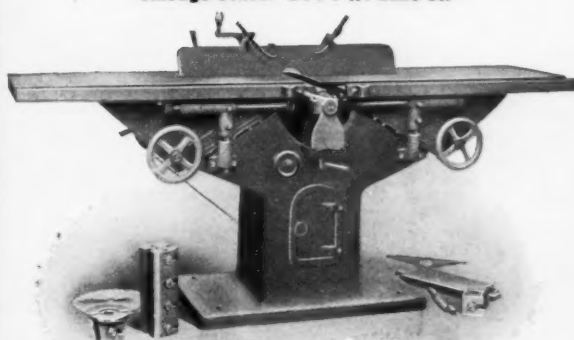
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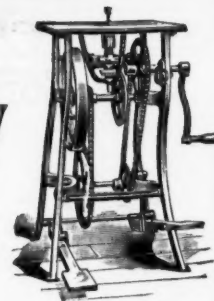


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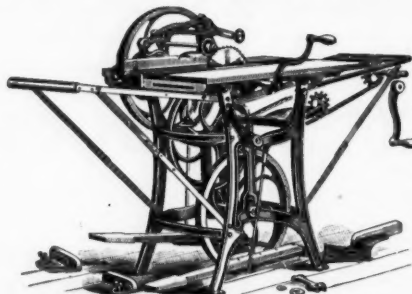
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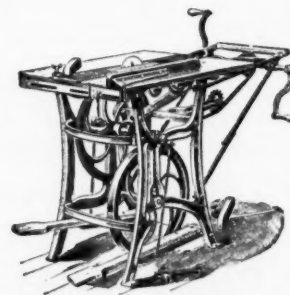
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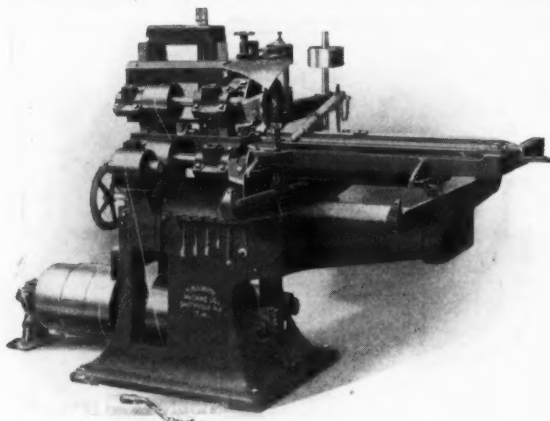
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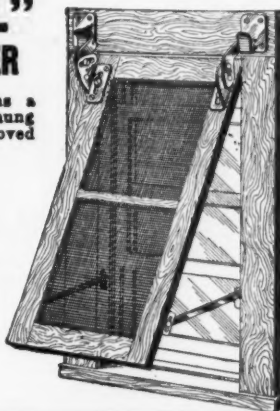
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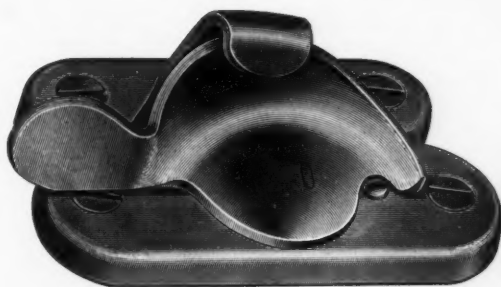
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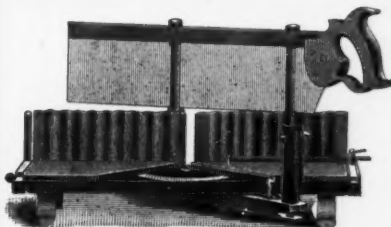


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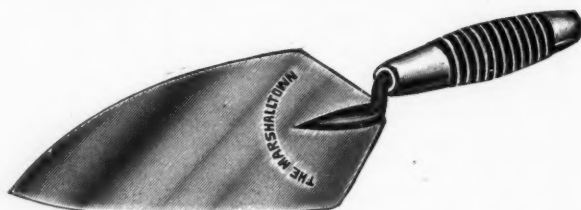
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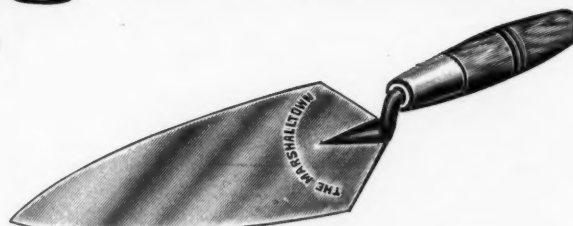


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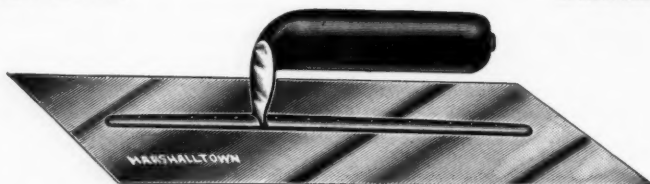
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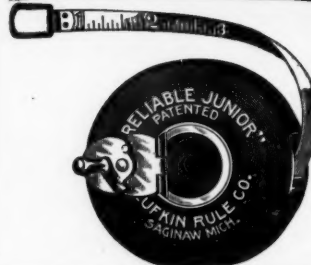
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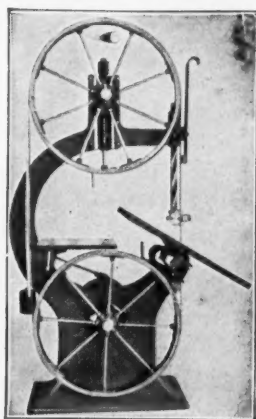
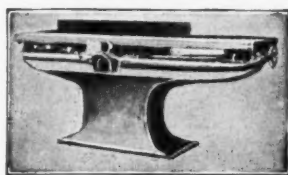
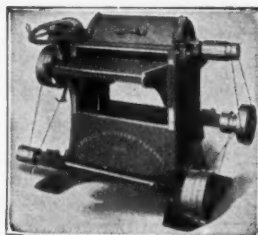
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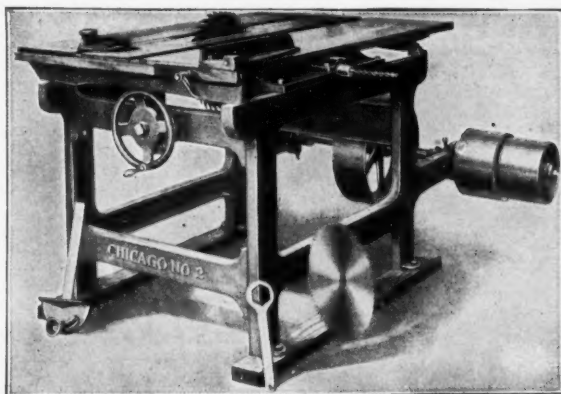
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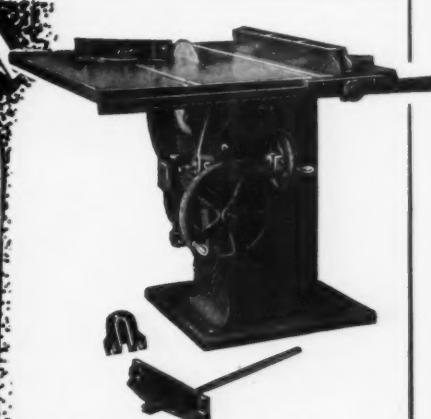
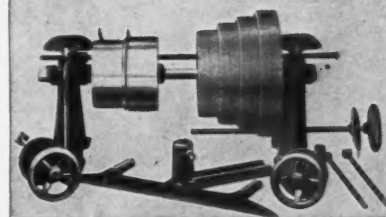
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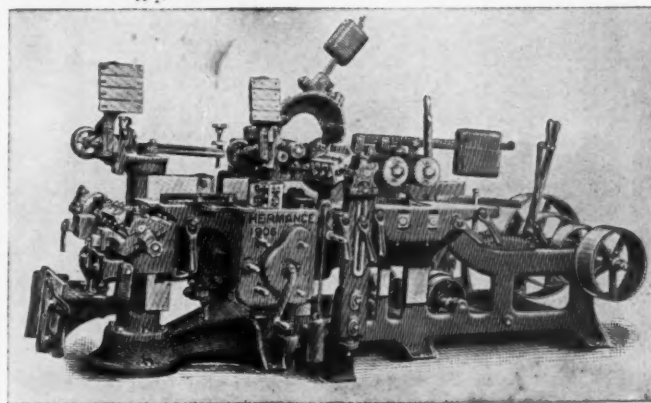
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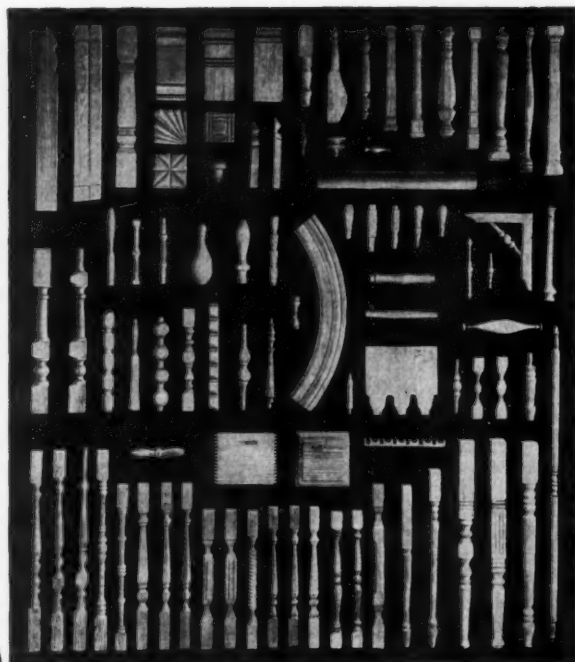


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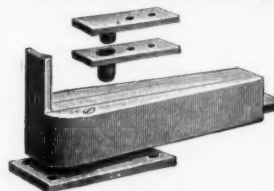
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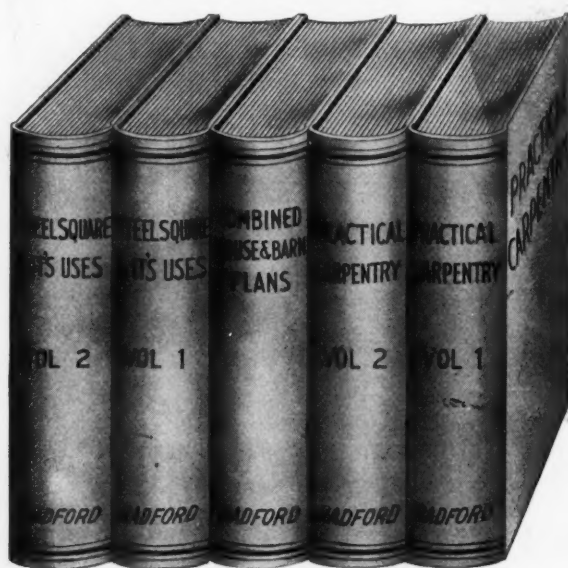
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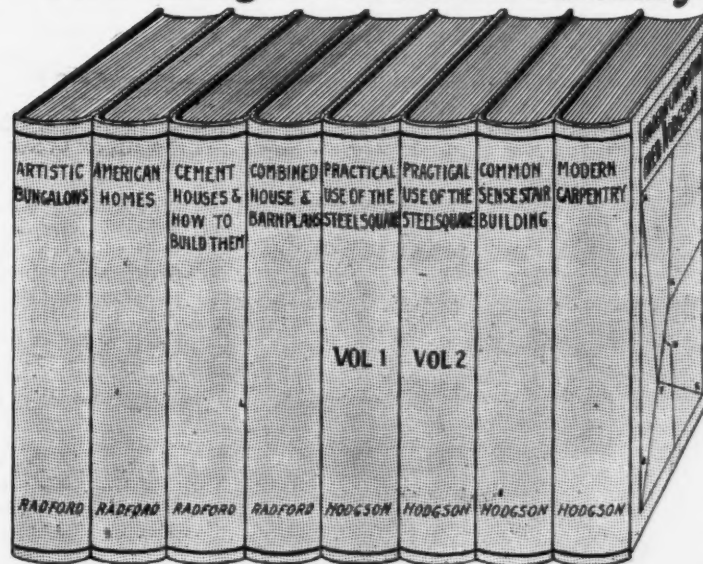
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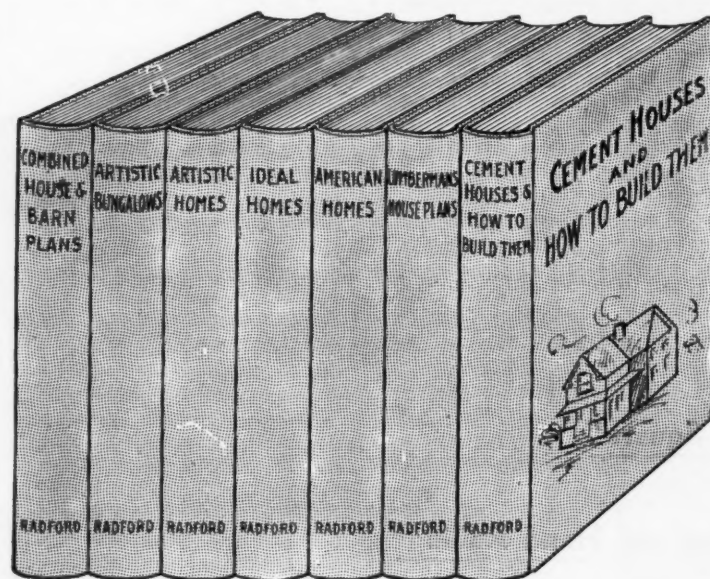
Great Building Plan Library

A set of seven building plan books, containing perspectives and floor plans of upward of 1,000 residences of every style and type of design. There are illustrations of cottages, bungalows, concrete-block and cement-plaster houses, frame buildings, etc., ranging in price from \$500 to \$5,000, such as the average prospective home builder is looking for. The houses shown in the Great Building Plan Library are guaranteed to be architecturally correct. These seven building plan books are just from the press and are as follows:

"Cement Houses and How to Build Them"

The first and only book of its kind ever published. Complete in every detail. Fully illustrated details of construction and information of every kind for the cement user and prospective home builder, including standard specifications for cement and concrete blocks, water-proofing, coloring,

reinforcing, foundations, walls, steps, stairs, sewer pipe, tile, concrete on the farm, etc., together with 87 perspective views and floor plans of cement-plaster and concrete block houses actually built. All houses illustrated with fine half-tones and printed on best quality enameled paper. Attractively bound. 180 pages, size 8 by 11 inches. 87 Cement Houses illustrated.



"Bungalows" The largest, best and most up-to-date book of Bungalows ever published. There are 224 pages of large size, showing perspectives and floor plans of 208 of the best types of these cozy, comfortable and popular houses. There is every style of Bungalow shown. Suitable for any climate, which must be taken into consideration. The book is printed from fine half-tones on the best quality of enameled paper, is handsomely bound and excels any book of its kind ever before published.

"Artistic Homes"

The latest and best examples of artistic and comfortable residences of all kinds, from the small to the large, from the low in cost to the more ambitious and most pretentious style of dwelling. 250 designs, including perspectives and floor plans, of cottages, bungalows, cement houses, etc. Fine half-tone illustrations printed on enameled paper. Size 8 by 11 inches.

"Ideal Homes" The best selling book of house plans ever put on the market. One hundred moderate-priced homes, illustrated from houses actually built and architecturally correct in every particular. 300,000 of these books have been sold.

"American Homes" Another book of house plans that has met with universal success. There are 100 fine half-tones of frame houses, with floor plans, showing houses ranging in cost from \$800 to \$4,000. More than 150,000 of these books have been sold.

"Lumberman's House Plan Book" This is a book of 200 house designs and floor plans gotten up for the use of contractors who have occasion to use plans of every variety for their customers' needs. It is offered to the general public as a book of practical common sense houses of excellent design.

"Combined House and Barn Plan Book" A full description of this book is given on preceding pages of this announcement. It is a new book, exceedingly popular; over 10,000 copies sold in December, 1908.

Combination No. 10	{ Great Building Plan Library, seven volumes.....	} \$5.75
	{ Cement World, one year.....	
Combination No. 11	{ Great Building Plan Library, seven volumes.....	} \$6.25
	{ American Carpenter and Builder, one year.....	
Combination No. 12	{ Great Building Plan Library, seven volumes.....	} \$6.75
	{ American Carpenter and Builder, one year.....	
	{ Cement World, one year.....	

S BARGAINS IN BOOKS

January Clearance Sale

¶ The home circle and family are also to be taken care of in our January Clearance Sale. We have made a selection of Books appropriate for the members of the carpenter's, builder's and contractor's household

Books for the Home Circle and Family

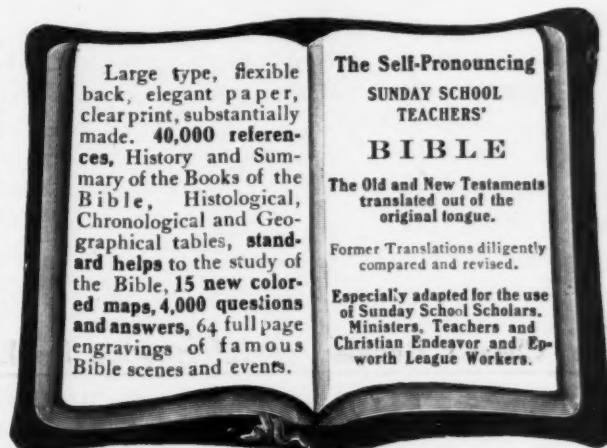
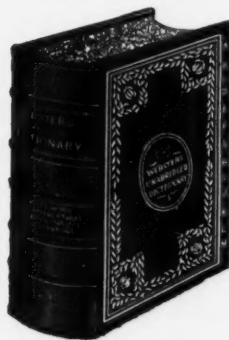
By special arrangement with the publishers we have at our disposal a limited quantity of three styles of remarkably fine Bibles, which we offer to all readers of the American Carpenter and Builder at a special bargain price in our combination offers.

Student's Bible Handy size, four and five-eighths inches by seven and one-fourth inches. Beautifully printed on the best rag white linen paper, from large, clear, black-faced type. Contains the only authorized version of the Old and New Testaments, and fine maps in colors. Bound in French seal, with overlapping covers, round corners, red under gold edges; silk head bands and marker. Bindings are absolutely flexible; covers will not break or crack, and every Bible is absolutely guaranteed.

Teacher's Bible The famous Holman's Teacher's Bible. Contains the following copyright helps to Bible study: Ready reference handbook, new comparative concordance, illustrated Bible dictionary with four thousand questions and answers, fifteen new maps in colors. Beautifully printed on finest rag paper from clear, black-faced type. In addition to helps described has references in columns and thumb index cut in edge. Bound in French seal; flexible, overlapping covers, rounded corners, red under gold edges, silk marker, silk head-bands. Open Bible measures eleven and three-fourths inches by seven and seven-eighths inches.

New Self-Pronouncing Red-Letter Bible

All Bible students and readers will hail with delight this practical idea for illuminating and beautifying the Word of God. The words of Christ printed in red. Printed words cannot describe the beauty of this Bible; they fail to give a real idea of the richness of the binding, splendid quality of paper and illustrations, or the completeness of this remarkable book. Size five by seven and three-fourths by one and one-half inches. Bound in Florentine seal, divinity circuit, paper-lined, watered-silk style, red under gold edges, with helps, references, concordance, etc., complete; containing also seventeen half-tone plates, twelve colored maps and thirty-two pages of copyright illustrations.



Genuine Webster's Unabridged Dictionary

This is the book, that, next to the Bible, should have first place in every home. The genuine Webster's dictionary is a condensed epitome of education in every line. This is the genuine, reliable Webster's, the product of the original and genuine Webster publishers, G. & C. Merriam & Co., the oldest firm of dictionary publishers in America. It is bound in law sheep, with Patent Index. It is printed from original type-set plates on good paper, handsomely and durably bound, with marbled edges, gold stamped. It is the latest edition of this standard work, with new Supplement, authorized and copy-righted. This volume contains over 118,000 words and their meanings; also new

census figures, four pages in colors and 3,000 illustrations. Weight, packed for shipment, ten pounds. If sent by mail, add 80 cents for postage.

Prices of These Books

Student's Bible, as described above.....	\$1.50
Teacher's Bible, as described above.....	1.95
Self-pronouncing Red-Letter Bible, as above.....	4.50
Genuine Webster's Unabridged Dictionary, as above.....	3.25

Add \$1.00 to above prices and include the American Carpenter and Builder for one year; add 50 cents to above prices and include Cement World for one year; add \$1.50 to above prices and include both the American Carpenter and Builder and Cement World for one year each.

BARGAINS^{IN} BOOKS

January Clearance Sale

¶ On this page we offer books for the home circle and family that are useful, instructive and entertaining. A cook book is a requisite in every home, and in Marion Harland's Complete Cook Book we have selected the very best and most widely known. Dr. Chase's Recipes are a constant source of information and in emergencies are to be trusted. In the Trip Around the World Post Card album we have taken into consideration the desires of the younger generation who are making collections of post cards.

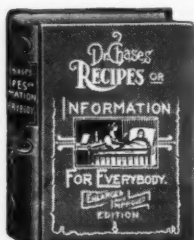
Marion Harland's Complete Cook Book

This big, new and complete volume is a household library, the result of Marion Harland's lifetime experience. Each recipe has been tested and brought to perfection by the greatest living authority. It is adapted in every instance to the tastes and incomes of the average family. In addition to the recipes there are exhaustive chapters on the care of the home and every branch of housekeeping. The book is a revelation to housekeepers, a sure resort in every difficulty, a treasury of answers to all inquiries. There are thousands and thousands of recipes. The volume is a handsome octavo, 6x9 inches. The pages are broad, and the type large and clear. The cover is of washable cloth. Marion Harland's "Familiar Talks" is a delightful feature of the Complete Cook Book which receives praise from every housewife. There are many "Familiar Talks" scattered through the volume. Price of this book, everywhere and always, \$2.00 per copy. Together with the American Carpenter and Builder, one year, \$2.25. With the Cement World, one year, **\$1.75**



Dr. Chase's Recipes, or Information for Everybody

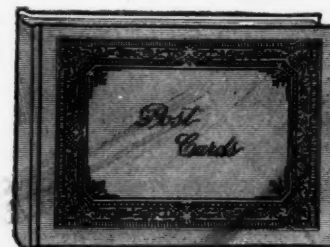
Latest subscription edition; most authentic, most reliable. The best, most complete Recipe Book ever published. Over one million and a half copies sold. This edition has been greatly enlarged and improved by the publishers, who have added a number of new departments, viz.; Advice to Mothers; Rules for Preservation of Health; What to Do in Case of Accidents or Emergencies; Treatise on Etiquette and Personal Manners; Hints on Housekeeping; Amusements for the Young, etc. All arranged in their appropriate departments, with a copious index. This edition is bound in fine English vellum, stamped in gold and contains 650 pages.



Price **\$2.25**
 With the American Carpenter and Builder, one year..... **3.25**
 With the Cement World, one year..... **2.75**

Souvenir Post Card Album

and a Trip Around the World Post Cards. Exceptional value. Strongly bound and containing a good quality of heavy fibre paper. Each album is size nine by eleven and one-half inches. Space for 200 cards. Weight eighteen ounces. A Trip Around the World Post Cards is a series of splendidly illustrated cards showing many of the beautiful places in the United States, Canada, Europe and Asia. Fifty cards to the set.



Souvenir Post Card Album, with post cards as above..... **\$.75**
 With American Carpenter and Builder, one year..... **1.75**
 With Cement World, one year..... **1.25**
 With American Carpenter and Builder and Cement World, one year each..... **\$2.25**

SALE BARGAINS IN BOOKS

January Clearance Sale

¶ We offer the readers of the American Carpenter and Builder their choice of any of the following books at 50 cents per volume; former price, \$1.18. If sent by mail, add 12 cents extra for postage on each book

Copyright Fiction at Popular Prices

Each book is handsomely bound in cloth, with distinctive cover design. Good paper, good type; size five and one-fourth by seven and one-half inches. These books have been universally sold at \$1.18 per volume.



THE SPOILERS. Rex E. Beach.
PRINCESS MARITZA. Percy Brebner.
HALF A ROGUE. Harold McGrath.
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THE FIGHTING CHANCE. R. W. Chambers.
BEVERLY OF GRAUSTARK. Geo. B. McCutcheon.
ST. ELMO. Augusta J. Evans.
AT THE MERCY OF TIBERIUS. Augusta J. Evans.
WHEN PATTY WENT TO COLLEGE. Jean Webster.
THE YELLOW GOD. Rider Haggard.
THE BRASS BOWL. Louis Joseph Vance.
ISHMAEL. By Mrs. E. D. E. N. Southworth.
DARKNESS AND DAYLIGHT. Mary J. Holmes.
BLACK BEAUTY. Anna Sewell.
SATAN SANDERSON. Hallie Erminie Rives.
SILAS STRONG. Irving Bacheller.

THE BATTLE OF THE STRONG. Gilbert Parker.
THE LION AND THE MOUSE. Arthur Hornblow.
THE HOUSE OF MIRTH. Edith Wharton.
THE PORT OF MISSING MEN. Meredith Nicholson.
WHISPERING SMITH. Frank H. Spearman.
TOLD IN THE HILLS. Marah Ellis Ryan.
THE OLD HOMESTEAD. Novelized from the play of Denman Thompson.
THAT PRINTER OF UDELL'S. Harold Bell Wright.
SELF-RAISED. By Mrs. Southworth.
BEULAH. Augusta J. Evans.
BLACK ROCK. Ralph Connor.
ROSALIND AT THE RED GATE. Meredith Nicholson.
THE FAIR GOD. Lew Wallace (Author of "Ben Hur").

Your choice of any two of the above books and the American Carpenter and Builder for one year, \$2.00. Your choice of any two of the above books and the Cement World, one year, \$1.50. In ordering, be sure to write titles plainly and give name of magazine subscribed for.

Building Books

Any of our readers who desire to purchase single copies of the building books offered in sets on pages 1, 2, 3 and 4 of this announcement can obtain them at the following special bargain prices:

Hodgson Books	
"MODERN CARPENTRY"	\$0.65
"PRACTICAL USES OF THE STEEL SQUARE," per volume65
"COMMON SENSE STAIR BUILDING AND HAND RAILING"65

Radford Books	
"PRACTICAL CARPENTRY," Vol. 1.....	\$0.75
"PRACTICAL CARPENTRY," Vol. 2.....	.75

"STEEL SQUARE AND ITS USES," Vol. 1	\$0.75
"STEEL SQUARE AND ITS USES," Vol. 2	.75
"BUNGALOWS"75
"COMBINED HOUSE AND BARN PLAN BOOK"75
"IDEAL HOMES"75
"AMERICAN HOMES"75
"ARTISTIC HOMES"75
"CEMENT HOUSES AND HOW TO BUILD THEM," cloth cover75

Add \$1.00 to the price of any of the above books and we will send the American Carpenter and Builder also for one year; add 50 cents and we will send the Cement World for one year; add \$1.50 and we will send the American Carpenter and Builder and Cement World for one year each. Cash in full must accompany all orders.

BARGAINS^{IN} BOOKS

January Clearance Sale

Miscellaneous Building Books

Architectural Drawing Self-Taught.....	\$2.00
Baughman's Lumber Buyer and Seller.....	1.25
Builder's and Contractor's Guide.....	1.50
Carpenter's and Builder's Complete Companion	2.00
Carpentry Made Easy, by Bell.....	3.00
Carpenter's and Builder's Assistant, by Gould	2.00
Dictionary of Architectural Terms, by Atkinson	1.50
How to Frame a House.....	1.00
Hardwood Finisher, by Hodgson.....	1.00
Elements of Hand Railing.....	2.50
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Key to the Steel Square, by A. W. Woods	1.50
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Paint Questions, 739 Answered.....	3.00
Realm of the Retail Lumberman.....	1.00
Roof Framing Made Easy.....	1.00
Stair Building Made Easy.....	1.00
Stone Masons' and Bricklayers' Practical Guide	1.50
Saw Filing and Management of Saws.....	1.00

Your choice of any of the above Miscellaneous Building Books at price quoted. On all orders of \$1.00 or over the purchaser, by adding an additional dollar to the price given can secure the American Carpenter and Builder for one year. By adding 50 cents to the price quoted on any of the above books the purchaser can obtain the Cement World for one year.

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Gentlemen: Enclosed please find \$.....
in payment for books listed below, together with
1 year's subscription to the magazine named
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CARPENTERS

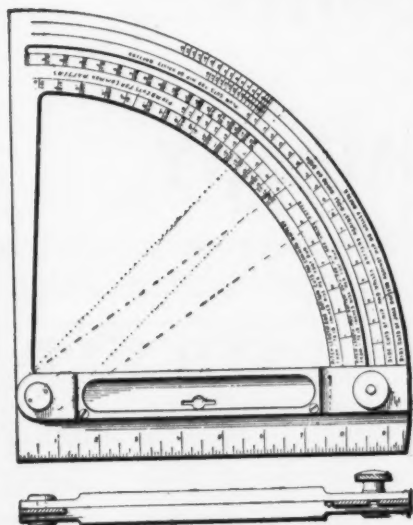
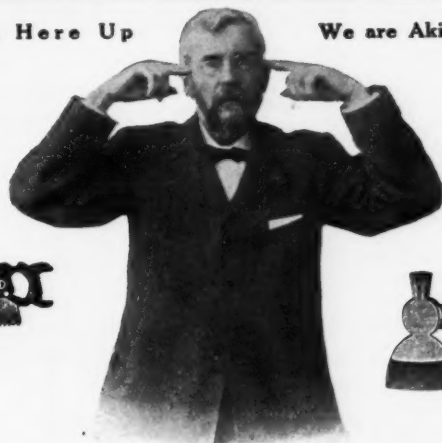
Would You Keep Abreast of the Times?

From Here Up

We are Akin to the Gods

From Here Down

We are Akin to the Ox



THE CALHOON Rafter and Polygon Bevel

Every bevel in the universe is contained in a quadrant; pass a line through it, from the center of the square to any degree or pitch, register on it the length (per foot run) and the opposite blades of the square will automatically (from that line) give bevels desired. See?

All calculations are based on 12 inches the unit of *base run* and 24 inches the unit of *pitch or rise*, and all hip, valley, octagon and jack, or cripple rafters on run and rise of principal or common rafter. We all know how difficult it is to read and apply the square. This tool will help you do both, or, rather, do both for you, as it is a practical tool.

The relative use of this tool in a carpenter's hands is that of an X-Ray machine to the surgeon, or of an interest book to a banker, or the computing scale or cash register to the merchant.

It is an organization of draft-board, square, tri-square, bevel-square, plumb, level and bevel-protractor into one tool.

This is a substantial TOOL, 9 $\frac{1}{2}$ —10 $\frac{1}{2}$. Made of Nicked Steel.

Testimonials

"The best framing tool in existence."—O. C. Kagelmacher, Case School Applied Science, Cleveland, Ohio.

"The most complete tool I have ever seen."—M. M. Lloyd, Master Mechanic, East St. Louis & Suburban Railway Company.

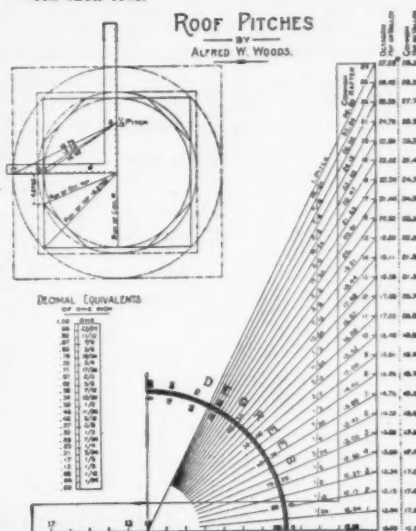
"The best mechanical device ever put on the market."—District Council, Kansas City, Mo., C. J. Huston, president, Edd. S. Abdill, secretary; District Council, Indianapolis, Ind., Chas. E. Bacon, president, Z. F. Carrigan, secretary; District Council, Cleveland, Ohio, Phil. Hyle, president; Jno. B. Melcher, secretary; District Council, St. Louis, Mo., Wm. M. Davis, secretary.

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Geller Ward & Hassner Hardware Company	-	-	St. Louis, Mo.
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Townslay Metal & Hardware Company	-	-	Kansas City, Mo.

Or Send \$3.50 to - A. O. CALHOON & COMPANY - Perry, Mo.

This illustration gives an idea of adjustment. The book of instruction will explain its full uses and application. Booklet of instruction with each tool.





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Equal in quality and usefulness to any Brace Bit

HANDLE OF
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COCOBOLO
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THREE SIZES ONLY
Cutting 4-32, 6-32, and 8-32 Holes

Price Postpaid **15 cents** each

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SHELBURNE FALLS, MASS.

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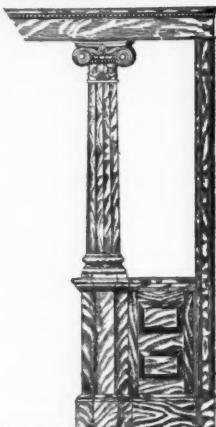
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You will make no mistake in writing us before ordering elsewhere.

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It contains many fine designs of modern Grilles, Columns and Consols.

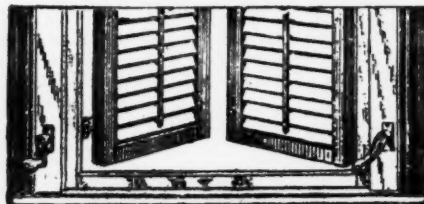
Illustration at right shows half-section of Column design No. 552.



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New and improved patterns and designs.

Opens and closes the blinds without raising the window. Automatically locks the blinds in any position desired. Made of gray and malleable iron. The best and most durable blind hinge. Incomparable for strength, durability and power. Can be applied to old or new houses of brick, stone or frame. Send for Illustrated Circular. If your hardware dealer does not keep them send direct to

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DON'T PUT SASH WEIGHTS IN YOUR
WINDOWS—THEY ARE OUT OF DATE

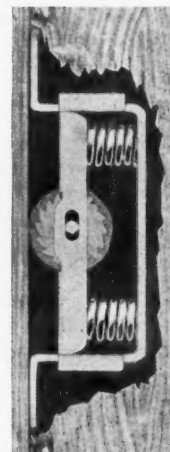
The "AUTOMATIC" SASH HOLDER

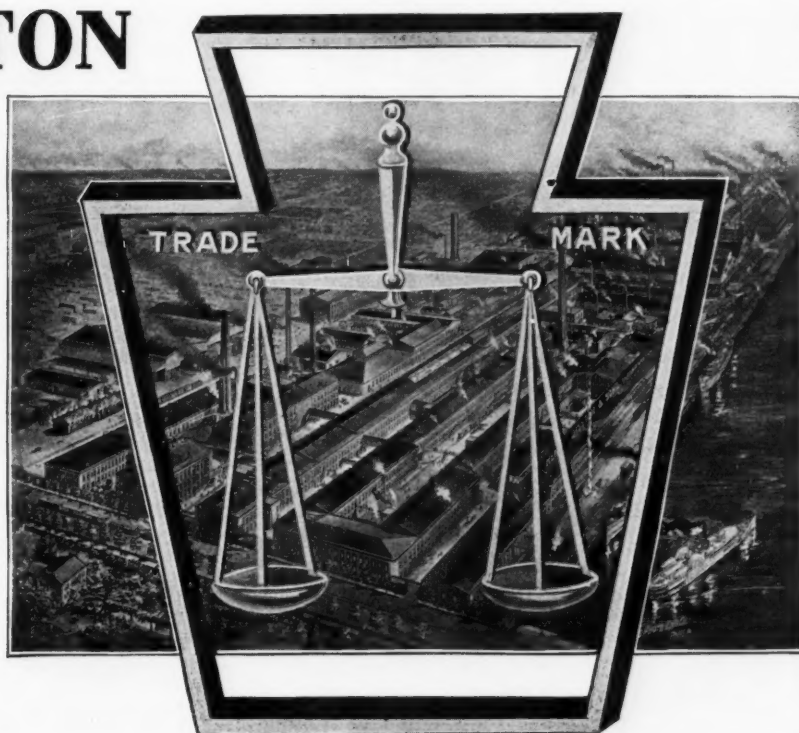
The "Automatic" Sash Holder is the new, modern, up-to-date device that dispenses with cumbersome sash weights, kinking cords or ribbons, useless weight pockets, misfit pulleys and reluctant balances, and saves all the time, labor and expense of fitting them in place.

Prevent rattling and permit the window to be moved up and down with ease. Hold it safely at any point desired.

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The Largest Saw Manufacturing Plant in
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For Wood Timbers,
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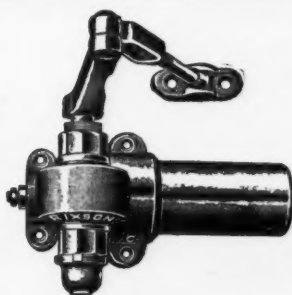
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Then use a Rixson Check
and Spring. They are easy
to put on and are guaranteed
for two years.

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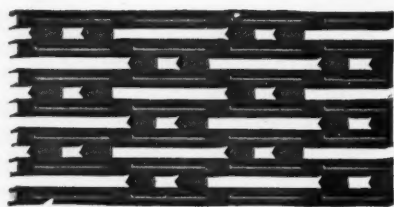
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It is this care and skill that
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Coming right down to the economy question Clincher Lath has got everything beaten.

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Sagging between the studding is rendered absolutely impossible if Clincher Lath is used. Read what progressive carpenters have to say about it.

Easier to handle and easier to erect than any other lath on the market. Prove this by sending to Department R. C. for samples. Free to anybody interested.

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COMPO-BOARD

A substitute for Lath and Plaster
Can be put on by any Carpenter.
It is Warmer, more Durable,
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Manufactured all 4 ft. wide, 8, 9, 10,
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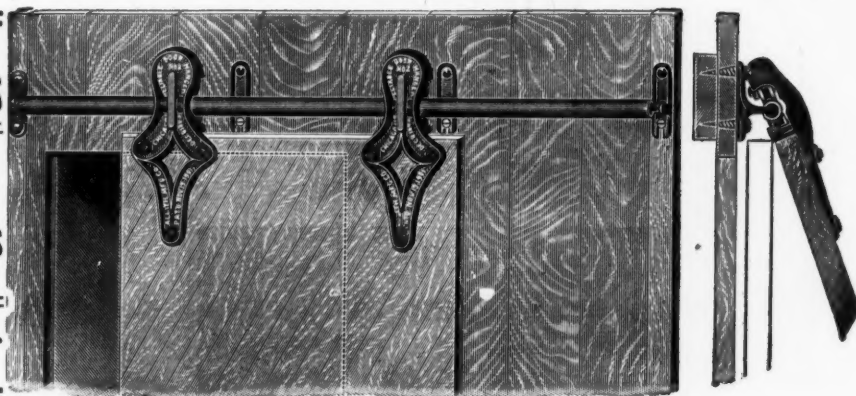
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Impossible to Derail
Easy Running, Great Strength

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BARN, WAREHOUSE and FIRE DOORS
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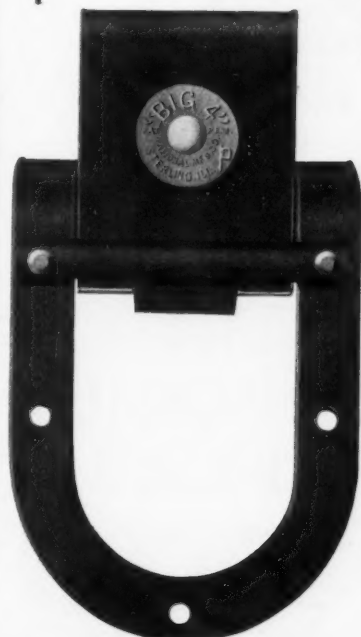


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"BIG 4" HANGERS

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More of these Hangers Sold than of any other make



Front View "Big 4" Hanger

WHY?

Simplest in construction.
Most convenient to attach to door.
A flexible and rigid hanger in one.
Great strength and durability.
Cannot jump the track. (See illustration.)

Construction

Made entirely of steel.
Anti-friction steel roller bearings
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View of "Big 4" Hanger
showing Flexible Feature

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It tells all about these hangers and gives some detailed drawings
of barn construction you should have. Send dealer's name.

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best tools
have this
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We will
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Nail Set either 1-32,
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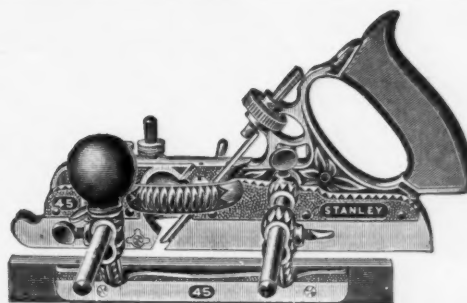
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Adjustable

Beading, Rabbet and Matching Plane



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(5) Matching Plane; (6) Sash Plane; and
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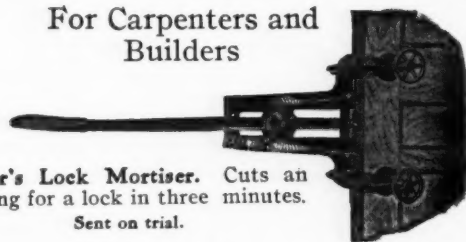
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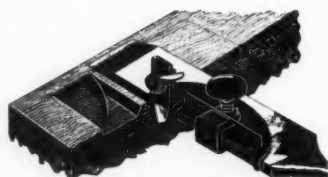
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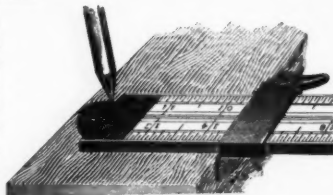
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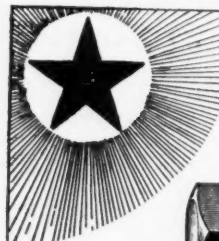


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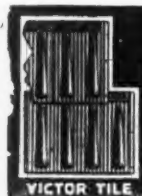
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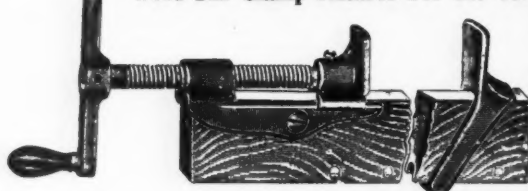
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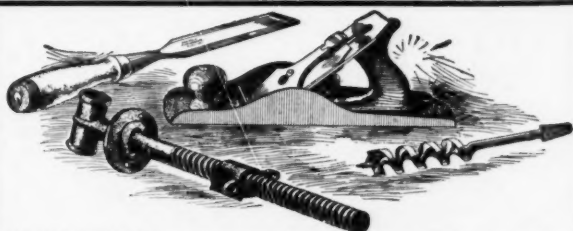
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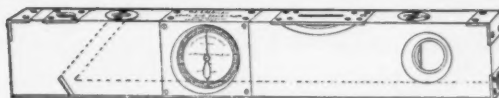


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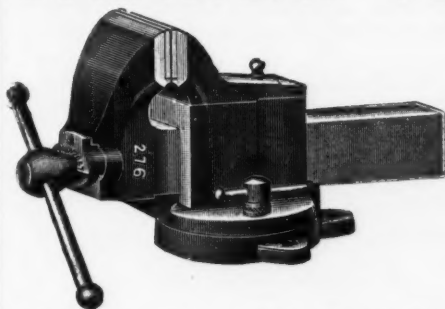
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American Carpenter and Builder

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185 JACKSON BOULEVARD, CHICAGO.

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The AMERICAN CARPENTER AND BUILDER is issued promptly on the first of each month. It aims to furnish the latest and the most practical and authoritative information on all matters relating to the carpentry and building trades.

Short practical letters and articles on subjects pertaining to the carpentry and building trades are requested.

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DON'T make a crooked path because the man ahead of you did.

THERE are so many ways to get pleasure out of work that it's queer how so many fail to see them.

THE man who takes a little sunshine home with him will be surprised, in a week or two, to find what a nice place home is.

THE path to success is paved with good intentions that were carried out.

Seasonable

THERE is precedent for the taking of a general inventory on the morning of each January First. Yes, in spite of all the jokes—real and imaginary—on the subject, resolutions *are* seasonable at this time!

We have learned many things during the year just past. Nineteen Hundred and Eight has been a good *teacher*; a peculiar year in many respects, trying at times to most of us,—we would not care to see it return! Yet the AMERICAN CARPENTER AND BUILDER wishes to take this opportunity to extend to the carpenters and builders of the country its heartiest congratulations on the hustling, optimistic spirit that has carried them through the year so successfully.

It is with all confidence in your ability—no, your *habit*—to make good, that we wish you a Happy New Year, a year full of prosperity. May we all have plenty of good, hard work to do, and the strength of brain and of hand to do it in the proper way.

Standing thus at the beginning of a new year, there could be no better time than now for us all to get together—members of the "Big Family"—and compare notes. We wish such a gathering were possible in actual fact! What a stimulus for good work such a meeting, with its interchange of ideas, would be! But such is not possible.

We can, and ought to have, however, a real "convention by mail," a general interchange of written ideas. Every reader, probably, of the AMERICAN CARPENTER AND BUILDER has some practical pet scheme for doing some piece of work, or some interesting bit of information, which would help his fellow readers, and which they ought to know. Let your Magazine, through its Correspondence Department, be your exchange. Also, there may be questions you would like to see discussed in the various Departments. Write to us about them. Help us to help you.

Nineteen Hundred and Nine is before us. Again we wish you a happy, prosperous New Year.

Prize Competition for House & Bungalow Designs

Invitation and Announcement

WE BEG to announce the American Carpenter and Builder Prize Competition for House and Bungalow Designs,—designs that are thoroughly practical, of frame residences which can be built, complete, for \$3,000 or less. This competition is open to the world. We shall be glad to have our readers, wherever located, bring this matter to the attention of their architectural friends. We desire to invite especially the carpenters and builders themselves to participate. Building plans of merit, practical in construction, and capable of being carried out at the estimated cost, will receive first consideration in making the awards.

Two Classes This is a Double Competition, covering two distinct classes of residences:

The 1st, Class A—Designs for Frame Houses, full Two Story, or Story-and-a-Half in height.

The 2nd, Class B—Designs for Frame Houses of the Bungalow or Cottage Type, all rooms on one floor.

Designs in either Class must provide for basement under the entire house. The cost to build must not exceed, in either Class, \$3,000; construction and finish to be substantial and first class.

\$200 in Prizes There will be EIGHT CASH PRIZES for the winners, four in each class:

Class A, Houses.	Class B, Bungalows.
First Prize\$50	First Prize\$50
Second Prize 25	Second Prize 25
Third Prize 15	Third Prize 15
Fourth Prize 10	Fourth Prize 10

Committee of Judges In order to insure perfectly fair, impartial and correct awards, a committee of judges has been selected, made up of two well-known Architects, who have made a specialty of Residence Architecture, one Building Contractor, and the Editor of the American Carpenter and Builder. Judgments will be based primarily on three factors: 1st, convenience of interior arrangements; 2nd, attractiveness of exterior, and 3rd, economy of construction.

Cost Will Be Considered While the maximum cost is placed at \$3,000, it should be borne in mind that designs calling for a smaller sum are also desired. Such designs will receive equal consideration with those just within the \$3,000 limit. Any design, however, made to figure \$3,000 by manifest deficiencies in construction or finish will be rejected.

Time Limit This Competition will be held open for all designs reaching the office of the American Carpenter and Builder at Chicago, Ill., up to and including March 1st, 1909. The committee of judges will make its awards so that the prize winners may be announced and the winning designs published in the April Number, the Fourth Anniversary Number, of this magazine.

All studies and designs submitted in this Competition are to be carefully packed, without folding or rolling, and are to be sent prepaid, to Prize Competition Editor, American Carpenter and Builder, 185 Jackson Boulevard, Chicago, Ill.

Requirements

EACH design for this Competition must include three parts: There must be a set of drawings, consisting of a front elevation, one side elevation, a foundation and basement plan, floor plans and a roof plan, including attic (if any), together with a good selection of details, embracing exterior and interior finish and construction. General dimensions with size of rooms should be given.

The elevations and plans may be drawn to any convenient scale, preferably $\frac{1}{4}$ in. to the foot; the details should be $1\frac{1}{2}$ up to 3 in. to the foot. All drawing should be on white paper or cloth, done in ink or in water colors.

Specifications Each study must be accompanied by brief specifications, outlining the construction of the Residence, indicating the materials employed, the finish, the scheme of heating, lighting, plumbing, etc.

Estimate of Cost There must also be an estimate of cost in detail under such headings as "Excavation," "Mason Work," "Carpentry," including roofing, "Plumbing," "Plastering" and "Painting." This estimate must show the cost in detail of the work and materials included under each of the headings. The cost of labor in connection with the various parts of the work must be given separately from the cost of the material; also current rates of wages per day or hour on which the various costs are based. In fact, the estimate must be in detail in the sense in which that word is usually employed. No set of drawings, unaccompanied by such an estimate, will be considered in awarding the prizes.

Conditions

AS THIS Competition is to be conducted in all fairness, no name nor identifying mark is to appear on any drawing or paper; but each design is to be accompanied by a card, bearing the name and address of the author, sealed in a plain envelope. Each design and its accompanying envelope will, when received, be given a number; and the design will be known by that number till after the awards have been made.

Ownership of Designs All designs submitted in this Competition shall remain the property of their authors, and shall be duly returned to them; the American Carpenter and Builder will PUBLISH THE PRIZE-WINNING DESIGNS in the April, 1909, Number.

Reservation The right to return to their authors all the designs submitted in this Competition without an award of prizes, in case none of the drawings sent in are judged of sufficient merit for publication in the American Carpenter and Builder, is expressly reserved. The right to readvertise this contest or postpone the date of it, in case it should be found necessary so to do, is also reserved.



New Year's Greetings

Woodworking Experiences in Hawaii

By H. C. Haner

THE writer has had the unusual experience of building a mill in a country in which sawmills were unknown; that is to say, what might be termed modern mills. True, there were some few primitive affairs of the kind we usually term "ground hog mills," built down on the ground and run with portable engines. But for a mill in which all the drives were down on the lower floor, with a clear saw floor above, in a building having a span of 65 feet, the idea was a revelation to every one who saw it, including the owners, some of whom are not yet convinced that sawing on the ground floor is not the proper way. It is the same old story of doing what grandpa did, because he did it that way.

I spent a week in Honolulu, and, while some business was transacted, it happened to be more or less of a pleasure trip, as it was just before the 22nd of February, and the big floral parade was to take place on that day. This island is all cane plantations. Sugar cane and pineapples are the staple products. There is practically no timber, all the land being cleared and devoted to these crops. In Honolulu there are several small mills in which house finishing is made. One of

all been bought second hand, and presented a curious assortment of makers' names. All of it was fairly well kept up, and the work being done was a good average quality.

The woods in use there came principally from the coast, and all stock, like flooring and ceiling, came ready worked. The demands of the trade there present some curious features, such as lengths in floor-



Cave Under Lava Surface Showing Soil Thickness

these is managed by Lee Chu, a well educated Chinaman, who speaks English fluently. His mill was full of machinery; so full, in fact, that there was but little room to get around any of them. Work from one machine had to be passed over or carried around to another. Most of the machinery was good, but had



The Giant Koa Tree in the Jungle

ing. Flooring and ceiling up to 36 feet is regularly kept in stock and is often specified in the contractors' bills. The yard man informed me that he often filled such orders, to find afterward that the stock was cut into 9-foot lengths for partitions. Such things make a lumberman lose his temper, and not infrequently what he mistakes for his religion.

In Honolulu I found the lumber yards quite up to anything we have at home, and when it is considered that they have to carry such an assortment of lengths in all kinds of lumber, up to 12 by 12, one cannot but regard the trouble of the yard men at home

as but trifling in spite of their loud complaints.

The railroads are narrow-gauge on the island of Oahu, on which Honolulu is situated, and are standard on the island of Hawaii, from the city of Hilo out. This is the road on which the mill the writer is building is situated. We are about 22 miles south of Hilo and on the south edge of the big lava flow of 1843, which covers this section of the country from the crest of the volcano of Mauna Loa to the sea, about thirty miles, with a coat of volcanic rock varying in thickness from 10 inches to 6 feet. This flow left the surface in the most fantastic forms, the cooling lava taking some of the most interesting and curious shapes. The entire surface of the timber section in which we are operating is like that shown in one of the pictures,

cases that leaving the stumps to rot out would furnish a good fertilizer, as well as entail a good deal less expense; but away back in the early history of the cane plantations this pulling was practiced, and what was good enough for grandpa is still good enough for the rest of the family. One look at a forest that has been pulled by this method would discourage some of the best loggers that ever cut a tree.

The Koa, or mahogany, timber is quite different from the Ohia. The former is very distinctly marked in its shadings and in its figuring. Some of the handsomest furniture ever seen is made up of this wood, table tops being made of one piece split and laid to form the figure. Some of the effects are remarkable for their beauty and for their resemblance to living



The Koa Tree Pulled Down—Notice the Slight Root Growth

the dark spot showing a cave made by the swelling of the coat of lava, forming a blister. The soil, in the course of ages, has formed from vegetation, and the trees grow in this soil, with only their wide-spreading roots for support, except in cases where the roots find a crevice in the lava and go down to the caves below. This picture shows well the extreme thinness of the soil in which the timber, Ohia, grows. When the trees are pulled down, which is done instead of cutting them down, the roots pull up a great mass of loose soil down to the rock, leaving the most tangled mass imaginable from which to pull the saw logs. This method of felling the trees is used in this particular case because the owners of the land want to plant it to cane. When the logging is done the stumps are piled and burned. It has been advised in many

objects. One panel in a bookcase has in it a perfect representation of a woman in evening dress with a veil draped over the head. The back of a mission chair shows a ship under full sail, with moonlight effect on the waves. The variety is infinite and varies with every change of light on the wood. The finish is like satin, varying to changeable silk, and presents a variety of markings not found in any other wood. Some idea of the size of the Koa tree may be obtained from the pictures, one of them showing a big tree, of which there are many. This tree is about 14 feet in diameter and is 24 feet to the first limb. It is these large trees that have the most perfect markings of the lumber. Another of the pictures shows one of the giants pulled over, and the slight root growth can be seen. The logs piled up show the average sizes of

the timber, and illustrate the method of pulling all trees to one central point for loading to send in to the mill.

The present mill equipment was found to be too inadequate to handle this timber, and a new band mill will be installed to cut it, the present circular outfit being laid aside. With the installing of a modern mill, it is expected to push the sale of the lumber in the States. Its beauty entitles it to rank with the finest of cabinet woods.

In these milling operations the labor is a curious mixture. In our crew we have Japanese, Chinese ("Parquet" they are called here), Koreans, Filipinos,

saw one of my carpenters (?) has in use. The teeth point toward the handle, and the Jap sits on the ground and braces his feet against the timber and pulls the saw toward him. The result is slow work, and when he is changed to a two-man saw, he saws crooked for a good while, but finally learns.

The other pictures show the difference between the Jap adze and an American adze. The central tool is a broad axe, or rather what they use for one. The blade is $\frac{5}{8}$ inch thick on the back, and is more of a sharpened wedge than a broad axe, and does correspondingly slow work even in the hands of an expert worker. Some of the Japs are hewing out Ohio



A Pile of Koa Logs Ready to be Loaded to the Mill

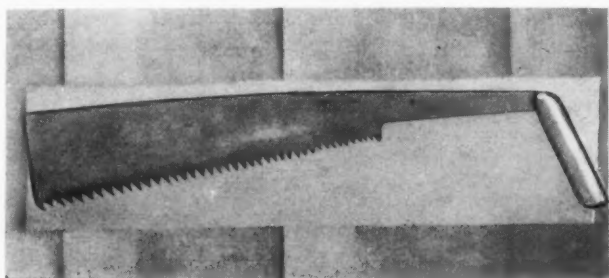
Portuguese, and a sprinkling of Kanakas, or native Hawaiians. The native is not overly given to work, but when he is *ahapa-Hoale*, or of half foreign extraction, he is a bright and somewhat energetic fellow. All sorts and kinds of races have inter-married with the native women, and the result is one of the most cosmopolitan races on the globe. There is every trait, good and bad, of all the races, and the virtues are not predominant.

Taking the races as workers, the Japs are the most energetic, but my high opinion of them from written reports received a rude shock when I had to work them, especially around machinery. They are fairly good imitators, but have absolutely no initiative. Their most prominent thing in learning is to do all things backward. As an instance, look at the picture of a

ties with such tools, and they are loath to believe that a tiemaker in the States will do from four to six times as much work as they do. It is largely a matter of tools, backed by a greater amount of skill. They never score a tie, but chip it off gradually until it is reduced to size. They hew their ties somewhat smoother than those made in the States, but as that is a negligible matter with a cross tie, their smoother work does not count in the run of a day's work.

A peculiar feature of these islands is that, although they are of lava formation and abound in pits and holes in the surface that offer the finest of hiding places for beasts of prey, there are none to be found. There are no snakes, and while the woods abound in edible roots, berries and fruits, none of them are poisonous. There is a native tuber or yam that affords

food to hogs and is often eaten. The great native dish is "poi," made from the Tara plant, and is a sort of thick gruel, tasteless to an American, but is liked a good deal after a taste has been formed for it. The writer has not yet managed to get accustomed to the dishes nor the fruits nor vegetables, all of which are very insipid to a man with a Chicago hotel taste to start with. But there is much that is enjoyable



A Japanese Cross-Cut Saw—Teeth Point Toward the User

about their eating, especially when it is the occasion of a "luau" (lu-ah-oo). On these festive occasions there is a suckling pig roasted, wrapped in leaves and packed in hot ashes, and this, with the fish, some kinds of which are eaten raw, and the Opeias, a sort of an oyster with one shell, also eaten raw, make a feast—after one is accustomed to the raw part of it. On some of these "luau's" there is what is called a "poi



A Comparison—Jap Adze and Broad Axe and American Adze

dog." A young pup is kept for quite a time and fed on nothing but this poi, and when he is rolling fat he is roasted the same way as a pig. This is one of the rare feasts!

This account would not be complete without some mention of the great native entertainment, the Hula dance. On many private occasions, and occasionally on public occasions, these Hula dancers give an exhibition. Some idea of its character may be had when it

is said that in the States the whole house would be "pulled" by the police, but it is permitted here in deference to the native ideas, something after the fashion of the English government of their colonies. It is pretty shocking at first, but one can get used to most anything in the tropics.

The climate of these islands, with some few exceptions, is the finest I ever experienced. It is never too hot nor is it ever cold. It is amusing to me to see some of the old residents going around with sweaters on and wearing a coat at night, when one thin shirt is all I want for comfort. Where we are, on the east coast, it rains a good deal, mostly at night, the yearly fall being 125 inches, but on the island of



A Typical "Grass House" of Honolulu

Maui there is one place that has a yearly fall of 400 inches. We are in plain sight of the famous volcanoes of Mauna Kea and Mauna Loa, the latter of which has an active crater at present, Kilauea, to which I have been several times and looked down into the fiery depths at the boiling lava, and which has been for some time in a very active state. I have some cards that were scorched over the lava cracks, the heat from which will melt a bar of solder in one minute. These cracks are reached on the way to the crater, and objects held over them with a stick for an instant get the desired scorch.

Our big tie mill is fast nearing completion and we will soon be sending ties to the States. After this has been accomplished, the Koa mill will be installed and some of the finest cabinet wood ever put into furniture will be available. Let some of the designers in the States take hold of this wood and its artistic possibilities will be developed almost beyond belief. I have never seen such combinations in panel work as this wood admits of. As it is one of the hardest of woods, though fairly easy to work, its lasting qualities are beyond question. It is hoped that some photos of the panels will be obtainable for a future letter. I think it will be agreed they are fine indeed.

A Successful Open-Air Sleeping Room

HOW AN APARTMENT WAS BUILT, GIVING ALL THE ADVANTAGES, BUT WITHOUT THE HARDSHIPS, OF THE ORDINARY OUT-DOOR SLEEPING PLACE

PEOPLE who live most of the time out of doors seldom have colds. Most of us pay a good deal of attention to what we eat. We are particular to have our food clean above all things. It must also be wholesome, expensive and abundant, or else we feel ourselves greatly abused. A good many of us on the other hand, seem perfectly willing to breathe stale,

laboratory, the purest of all the actual necessities of life. The importance of fresh air, and a good generous supply of it, too, becomes more vital to us when we consider that we have to breathe several times a minute both day and night.

For most of us—working more or less out of doors—the daytime supply of fresh air is all that it ought

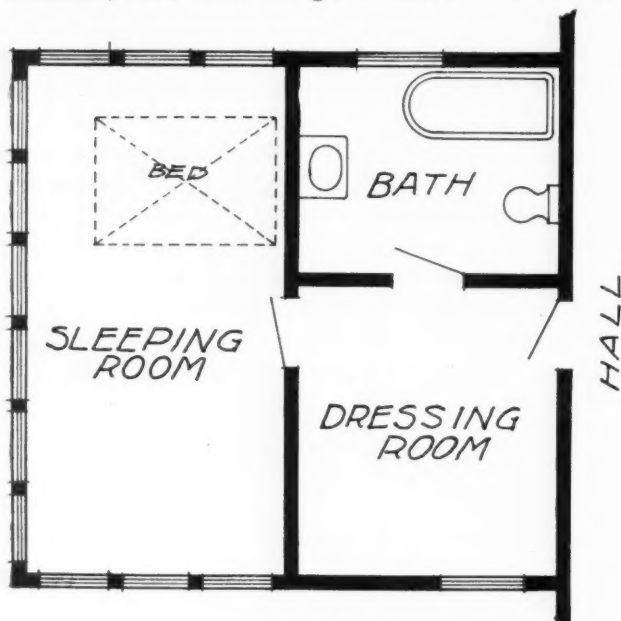


The Home of E. W. Reynolds, Morgan Park, Ill., Showing "Open-Air" Sleeping Room

second-hand air that has been used and poisoned and then used over again. Yet air is the cheapest, most abundant, and, when we get it direct from nature's

to be. It is with the air we breathe at night that there is often room for improvement. This point has been most emphatically presented during the past three or four years by various eminent physicians and by societies for the prevention and cure of tuberculosis. It has been proved conclusively that the germs cannot develop nor live in the presence of fresh, out-of-door air, but do thrive, multiply and grow fat, indoors in unventilated rooms. Stuffy sleeping rooms are their especial romping place.

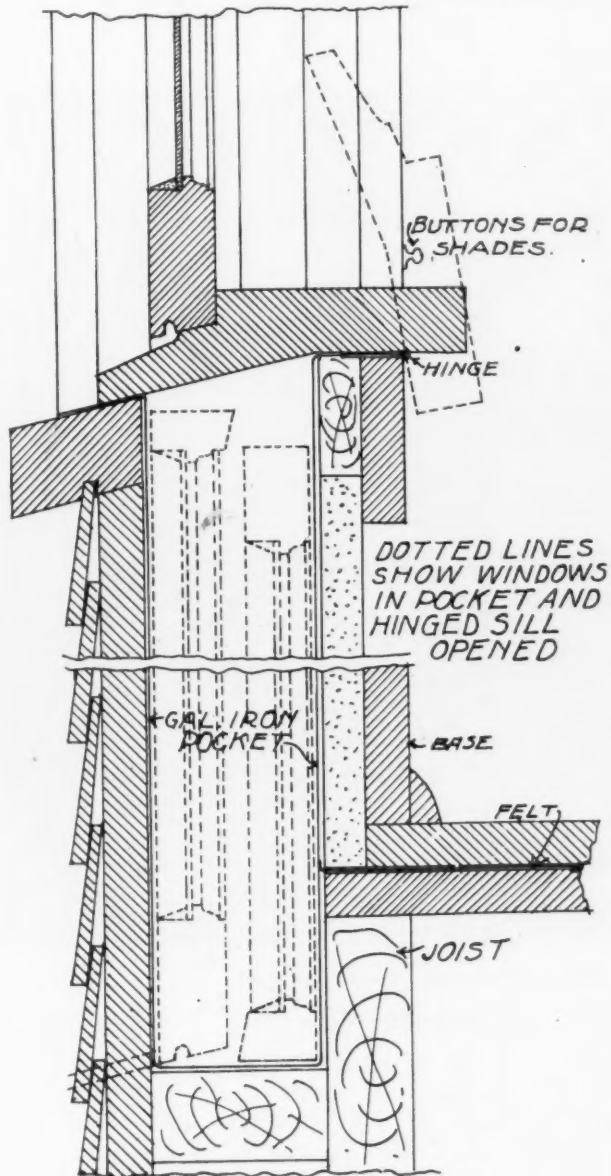
Mr. E. W. Reynolds, a resident of Morgan Park, Illinois is not given to the consumption habit,—and he doesn't propose to be. He believes in fresh air. He believes in living outdoors as much as possible. In order to get the full benefit of the best air obtainable he bought some time ago a house situate up on the crest of the hill in Morgan Park. But even with that he was not entirely satisfied. He felt that much of the beauty and vitalizing power of the fresh night air was eluding him. So last summer he engaged Mr. E. J. Lewis, a local carpenter and contractor, to build an extension to his house by carrying the south wing out some twenty feet; his main purpose being to



Plan Second Floor—"Open-Air" and Adjoining Rooms

secure an "outdoor" or fresh air sleeping room. The manner in which this was done was extremely ingenious and is proving successful in every way. The idea is well illustrated by the photographs of the house and the accompanying working detail drawings.

In the main illustration this south wing is shown. The sleeping room is on the second floor, open three sides to the weather. The openings however are fitted with sash glazed with tinted ondayant glass

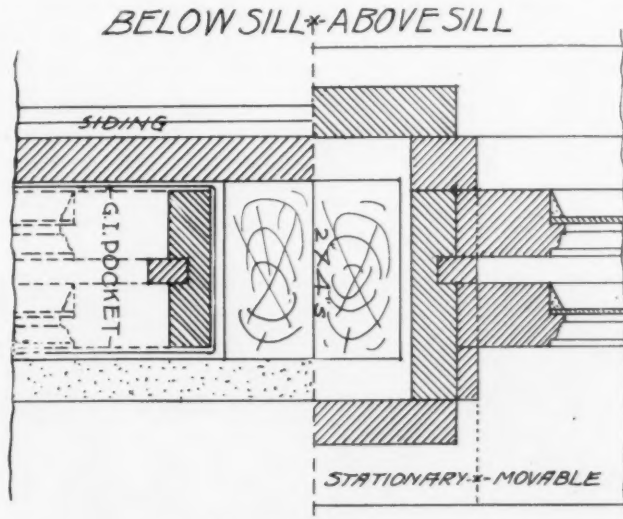


Detail Storm-Proof Sill and Window Box

to close when the weather is extremely windy or stormy. Next to the sleeping room is a dressing room and bath room, both of which are kept comfortably warm, but the sleeping room has no artificial heat. Mr. Reynolds says a person can sleep comfortably in a tent out on the lawn in winter; and he speaks from experience. But he has found that a warm dressing room is not only a great comfort but a necessity.

One of the photos shows a corner of the sleeping room with the sash closed. All the windows have

curtains made out of cotton duck; the two windows to the left show them drawn partly down and buttoned to stud buttons screwed into the casing. In summer



Detail Window Jamb

the windows are all left open, the only protection being the outside wire fly screens. On windy nights some of the canvas curtains are lowered and fastened to prevent the wind from blowing in too strongly.

Because of the handsome library on the first floor, great care had to be taken to guard against injury from sudden storms. The windows and floor of the sleeping room were very carefully made for this reason; in fact Mr. Reynolds says you could play a hose on the floor of this room without in any way injuring the library below. The detail drawings show how the windows were constructed to be perfectly storm proof and water tight. The jambs extend down, with the exception of those in the center on the south side, so that the sash may be lowered into pockets below the floor. These pockets are lined with gal-



The Library Below, Which Had to be Protected

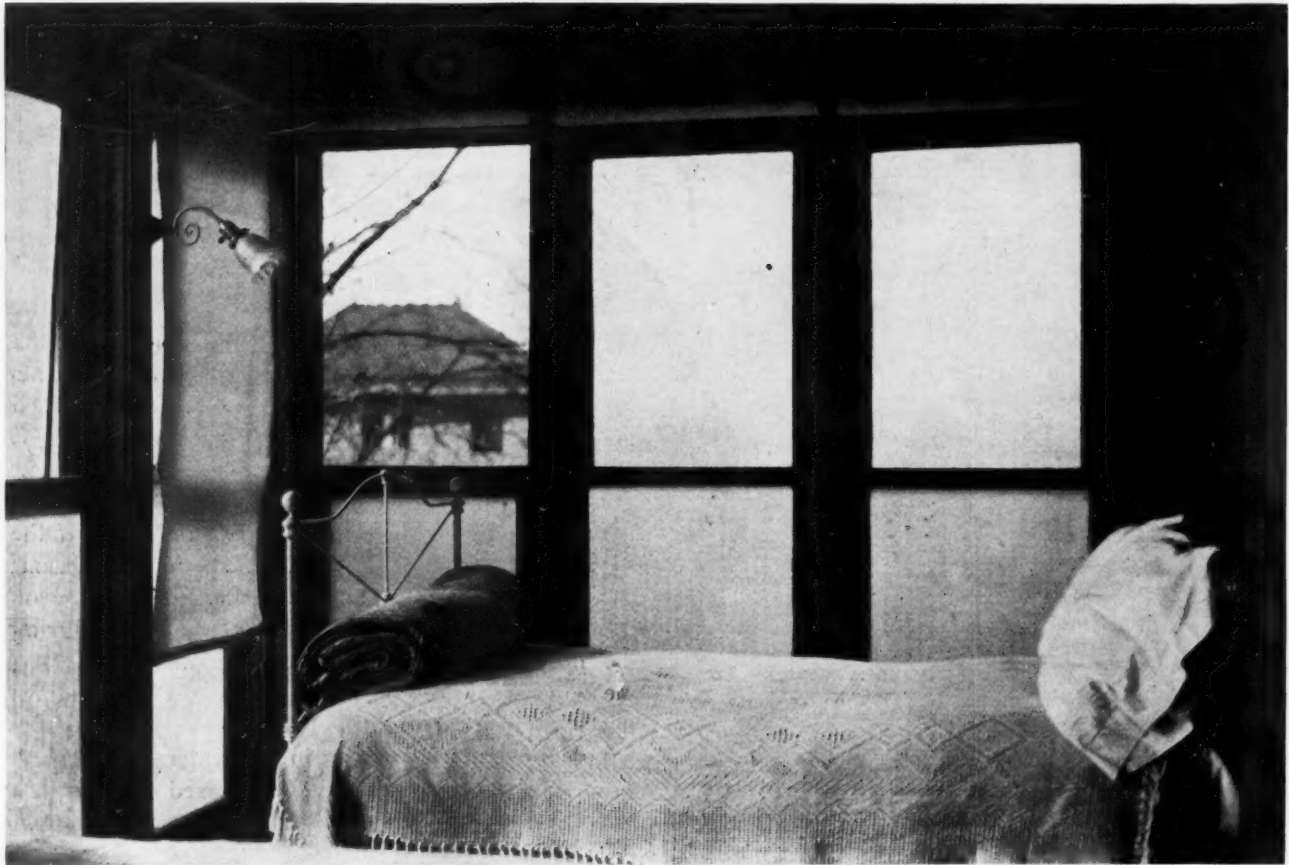
vanized iron made water-tight and connected with a gutter outlet. All sash are balanced with heavy coil steel sash springs so the sash may be easily raised or lowered. When down the opening is covered

with a hinged cap. The center windows under the gable slide up, the window frames being extended into the attic for this purpose.

In making the floor great care was taken to have it water tight. In the first place a matched pine floor was nailed to the joists in the usual way. This was mopped over with tar and covered with a layer of tarred felt carefully tacked down along the edges of each sheet. This layer was then mopped over with fresh hot tar, and another layer of tarred felt laid to break the joints and tacked at the edges. In all

was completed by Andrew A. Roche, the finishing touches having occupied him for four straight hours. Having finished, he inscribed his name on the small ball that crowns the apex of the spire, then he carefully made his way down the framework of the building to the fortieth floor. Roche is a painter of nerve, but not a braggart, as we may judge from his own words:

"There's no use saying a fellow hasn't an uncomfortable feeling doing a job like that. I make no claim to being braver than anybody else, and I want to say



A Corner of the Open-Air Sleeping Room, Showing Protecting Curtains and Sash

this work provision was made for a good joint around the outside edge by carrying the tarred felt over the edge of the galvanized iron lining in the window pockets. On top of this foundation a solid tongued and grooved white oak floor was laid in narrow strips, the groove of each strip was filled with white lead before driving it up.

The illustration showing a corner of the elegant library underneath the sleeping room proves the wisdom of carefully protecting it as described from a possible accident from above.



A Painter's Perilous Work

The Metropolitan building, in New York City, is the highest building in the world, being 700 feet above the pavement. About the last part of October the job of painting the spire on this tolerably lofty structure

that it is a job I never want again. From the fortieth floor to the fiftieth is a succession of ladders, until you get to the base of the spire. We have no rigging specially for such work. I slung a pot of paint over my shoulder and made my way to the top of the spire, where I hung on and painted. The sensation was wonderful. At that altitude there is a strong impulse to jump off, and a man has to summon all his nerve to keep straight. The feeling came over me at times, and I succeeded in restraining the mad impulse to jump into eternity, but only by great will power. It was dangerous to look down, but I could not forbear to look now and then. The people in the park appeared like a lot of bugs grouped together, and those walking on Broadway looked like flies crawling along. I put my name on the ball at the top, so that is higher than anybody's else; only a man in a balloon can go higher with his name."



A Delightful New England Home

By M. H. Northend

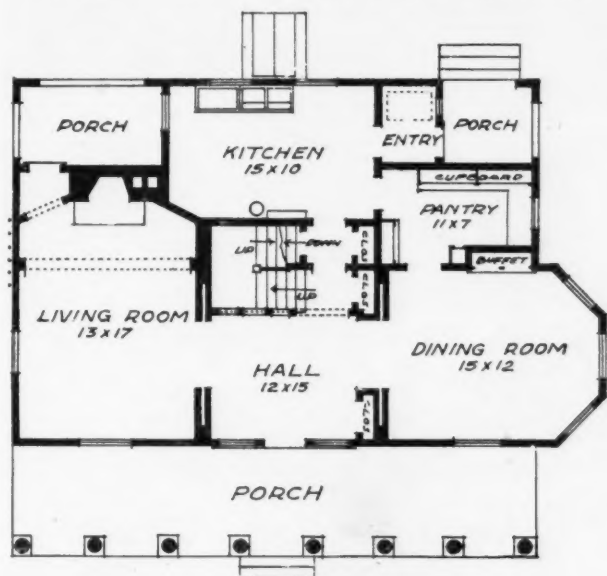
THE home of Mr. Augustus H. Patterson at Newtonville, Massachusetts, designed by Messrs. Peare & Quiner, architects, is an interesting example of a comfortable, artistic house. It is a pleasing combination of the colonial and modern styles of architecture, as these styles are being used in New England today.

The quaint dormer windows at both the front and

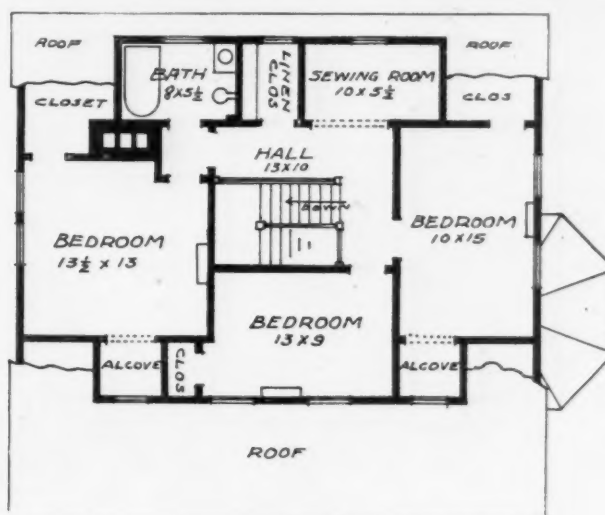
of the old and comfortable farmhouse type.

At the rear, this roof is fashioned into one of the overhanging variety, so frequently seen in homes of the colonial period, and combines effectively with the modern porch and trellis-screened sun-parlor. This sun-parlor is one of the very interesting features of this attractive home.

A fancy high trellis has been erected at one side of the house, and at its base vines have been planted.



First Floor Plan



Second Floor Plan

rear of the house, add a touch of picturesqueness to a rather plain exterior; and the deep, sloping roof, which extends at the front to form the top of the wide veranda, supported by six large pillars, is distinctly

These in time will clamber and hide the farmework from view, and present a delightful symphony in green, which will harmonize well with the deep green tones of the blinds and the grey of the shingles.

The exterior is further improved by the large bay window at one side, which allows the bright sunlight to enter and brighten the dining-room.

The outside of the house is finished with shingles, stained a soft grey. This gives the house the appearance of being old and weatherbeaten and the grey tone combines well with the pure white of the trim.

The entrance door leads directly from the veranda into the hall, which is rather unique and attractive in appearance; the fern leaf pattern paper and dark green trim produce a decidedly interesting effect. The staircase is concealed from view by a screening, the upper part of which suggests a Japanese ramma, or ventilation panel. It is stained to match the trim, and shows the grain and markings of the wood. This is a stairway treatment that is very simple and economical to carry out, yet there is scarcely any arrangement more satisfactory for a house of this kind.

A glance at the four plans will show the exceptionally fine disposition of space in this house. A number of features are especially interesting. To the left of the hallway is the living-room, a large, square apartment, finished in a cherry stain, its walls covered with a paper of fanciful design in tones of red, green and



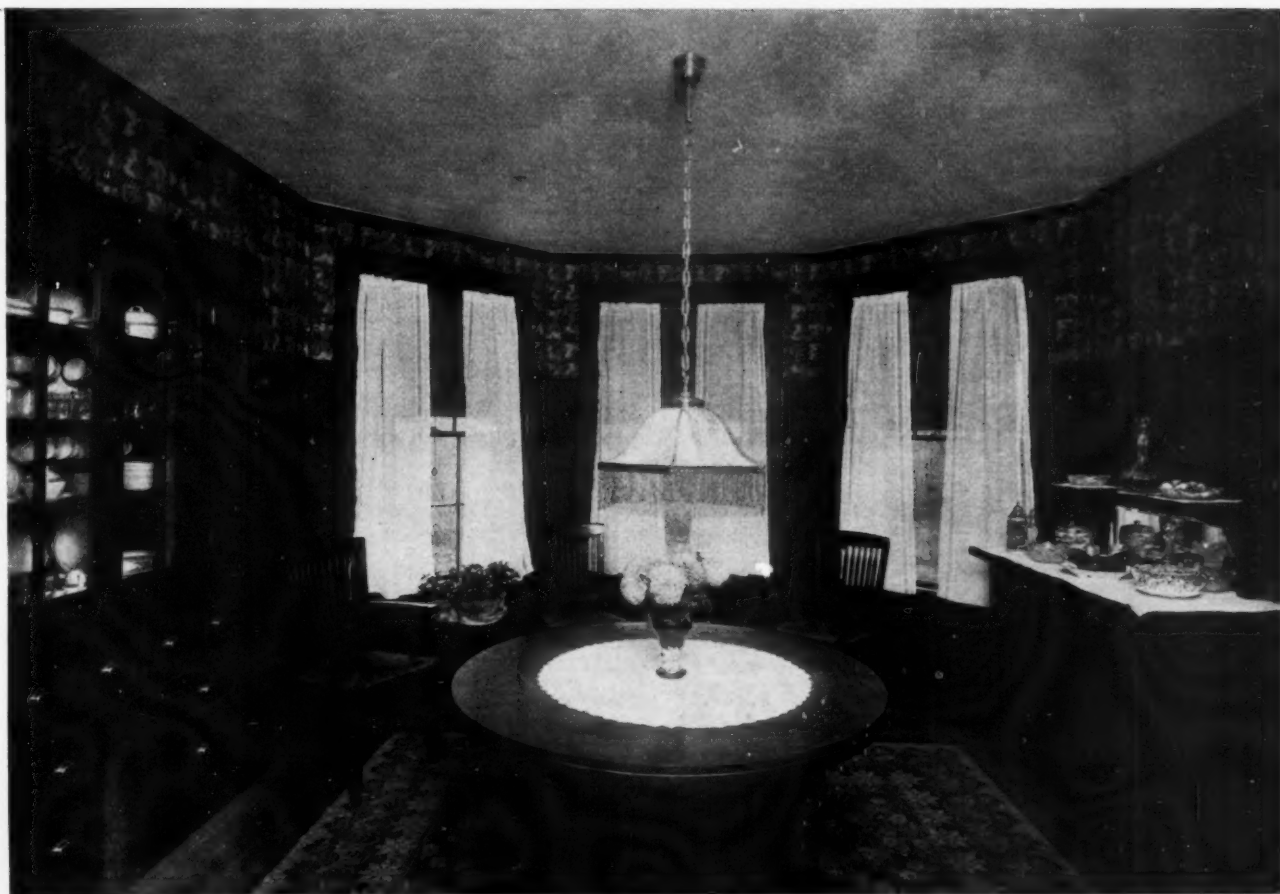
The Comfortable Home-like Living Room

yellow. At one end of the room is the fireplace, constructed of red bricks laid in white mortar. To the left of the fireplace, an alcove, separated from the main room by pretty brown silk curtains, leads to the little back piazza, enclosed as a sun-room.

On the opposite side of the hall is the dining-room, panelled in green burlap up to within about three feet of the ceiling, where it is met with a dado of Southern



Reception Hall and Stairway—A Unique and Satisfactory Treatment

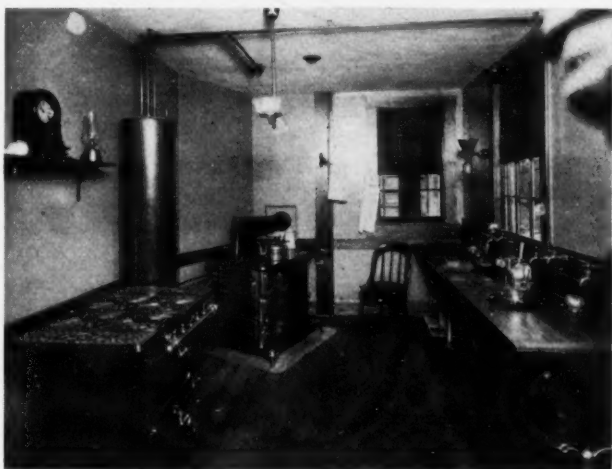


The Nicely Lighted, Bay-Window Dining Room

foliage design and is finished at the top with a narrow molding. The furniture is stained to match the woodwork, and is simple in design. The art square upon the floor repeats the colors of the dado. The dainty white muslin curtains at the windows, together with the drop shade of Japanese design set in a wooden frame, give charm and personality to the room. A very attractive and useful feature of this room is the

separated from the hall by a shallow entry and closet, where the brooms and dusters are kept. The walls are so constructed as to deaden the noise and prevent the smell of the cooking from penetrating into other parts of the house. This arrangement with respect to the kitchen is an interesting feature, and has proved most successful.

The second floor is divided very satisfactorily. The hallway is lined with bookcases on one side, and widens out into a cozy den or sewing room. The rest of the upper story is divided into three chambers and a bath room, all daintily finished. The cost complete was about four thousand five hundred dollars.



The Kitchen

built-in china closet, with drawers underneath for linen and silver.

Directly back of the hall is the kitchen, a long, low, pleasant apartment, finished in yellow plaster. It is



Rear View, Showing Screened Porch

Wood Carving from Nature

By C. Bryant Schaefer

A PERSON handy with tools can easily learn ornamental carving. A grown person and mechanic can make a beginning without going through the preliminary courses which are arranged for the young and inexperienced. Art is rather the finishing touches of a well learned trade than something to be learned apart from practical employment.

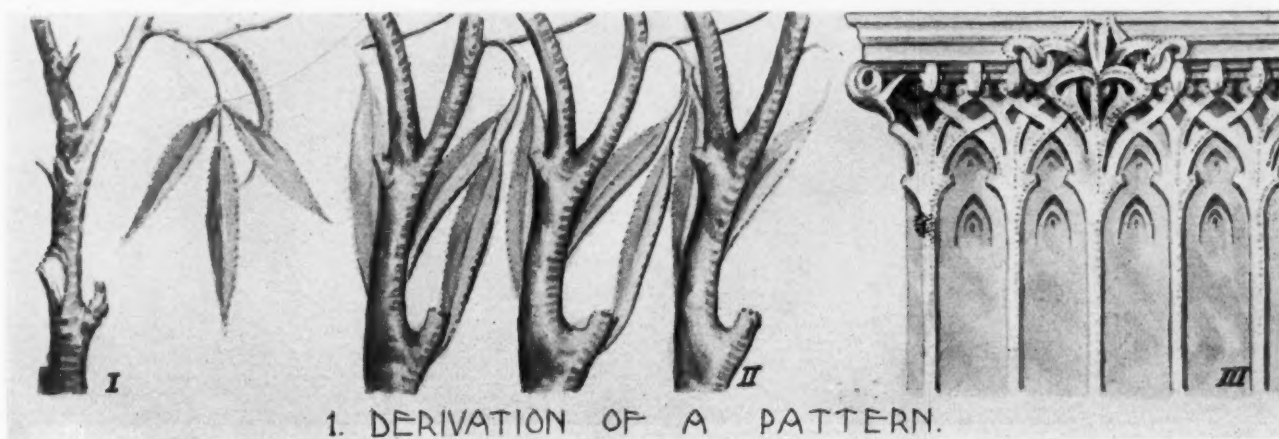
Good work can be done from the start if the designs are simple and well chosen.

Some acquaintance with the possibilities of carv-

the masters were. This is the true American way.

Any fine-grained stuff will do for wood carving. Among the kinds commonly used are holly, cypress, fig and lemon tree; lime, plane and chestnut woods. Very few tools are needed to begin with.

Get a flower or a twig with some leaves on it. Do not think of copying it, but study it. Overlook the disagreeable features, like the torn leaf or the ragged bark. Seek the desirable element, which is to be found in all things. See in what respect the



1. DERIVATION OF A PATTERN.

ing as an art is desirable before beginning. Without it a person is apt to feel that time spent in decorative effort is mere trifling.

It is never satisfactory for beginners in any art to copy the work of experts. Imitations will not stand comparison with the originals; and the employment becomes a drudgery instead of being a pleasure. It is better to exercise one's own choice and be free, as

strength of the branch is formed. Its angles are really a stiff, continuous curve. One bend is related to another. There are little knobs of reinforcement where the stems branch off. The swaying limb is full of grace and every leaf finds a place for itself.

Then plan some patterns similar to the example among the illustrations. Arrange the natural forms with method. Introduce symmetry. When it has been



An Oak Leaf Design—Carried Out with Great Strength and Beauty



Quaint Old English Wood Carving—Subject, "Messengers Drawing Teeth"

made suitable to the place it is to occupy it may be worked out. Then it will relate as clearly as words what the carver found to admire or what he wished others to appreciate.

The arrangement of natural objects in conventionalized patterns and the emphasizing of the beauties the designer discovers is one of the greatest pleasures of artistic work. It also gives people something to consider and appreciate. Second or third glance finds new beauties. The object never becomes tiresome or out of date. The scrolls and quirks that are punched out by the yard so thoughtlessly do not have this lasting fascination. If the carver appreciates this, his simplest work is then sure to be dignified.

There is one more step in the conventionalization. The pattern must be adapted to the tools and materials and fitted for practical application or use. This may change the pattern so that there is little resemblance to nature left. The value of the work, however, is not injured on this account.

The most favorable subjects to begin with are carved belt courses, panels, capitals and finials. Gothic examples of these features are shown as a guide. The artists who carved them had no drawings or patterns to guide them. They had no art education, as the schools define it today. These workmen outlined their patterns and cut right into the wood and stone to represent whatever they found fit. They may have learned the vegetable forms and habits of plant growth from hoeing in their own kitchen gardens.

In the photograph of the beautiful mantel will be found belt courses. The forms carved are chosen for the contrast of light and shade. Buds with a deep cut background secure this. See what a beautiful thing is made from a common cabbage leaf. What a full bowl shaped form it has, all ruffled and scalloped

around the edge. These are the buds that climb up the edges and corners. The wood panels represent the idea still further. Their beautiful geometrical interlacing is accompanied with foliage. Notice how the boldest members, the stiles of the panels, are quite sufficient for a simple scheme. That is probably as far as the carver at first thought of going with his work. Then another molding was added to the sides by cutting a little deeper, and so on, adding more and more. What a sure and thoughtful method! It led to the



Fine Example of Carving—City Hall, Constat, Belgium

designing of whole windows and facades. It is the way the Gothic mind worked and produced some of the most intricate work.

It is seldom that such a good illustration of carving detail is to be found as that of the oak leaf between the belt moldings. The very texture and thinness of the leaf are here represented, although in a necessarily thick and clumsy material.

After practicing the arrangement of a few natural

it has the appearance of being finished. This is then often sufficient for a great many decorative purposes.

Use the same tool in similar places; one for the leaves, another for the stems, and so on. Make the finishing touches uniformly. Do not twist the tool around. Try it with various motions before touching the material. Let the tool marks follow the little veins of the natural objects without reproducing them. Stop work before beginning to smooth out the carving.



Curious Wood Carving, from the Cathedral at Ely, England

objects in various ways, as already directed, a pattern may be decided on to carry out. Have the natural examples near by. Mark the main outline of the pattern on the surface of the material to be carved. Overlook the smaller details for the time being. Leaves are in groups of three or more. They are in bunches and clusters that have a general outline over all. It simplifies matters to get this first. Confusion is avoided and many unnecessary details as well. Stress is laid upon this because beginners usually start with too many small things and fail.

The belt course of sea weed illustrates this progress of the work. First the main, shallow cutting at the left. After that the shaping of the leaves and interlacing seen in the middle of the example, then the finishing touches on the surfaces as shown on the right hand side.

Instead of making the first outline roughly, as some prefer, it is better to do the work nicely so that

A part that is found difficult of execution should be modified appropriately. A pattern that is repeated in sections does not need to be reproduced with exactness. On the contrary it is better to have some slight harmonious variation.

Become a carver by carving your own ideas. Most directions lead one into the habit of carving from patterns. The result looks like a drawing more than it does like sculpture. In the same way machine cut work represents an accomplishment in mechanics. They may make a place for themselves, may become necessary, but they can never equal the value of real carving.

The chisel is just as much an instrument of culture and expression as the pen or painter's brush. One can take up a bit of carving from past ages and reconstruct the entire condition of the people who made it. Or one can do a piece of intelligent work with ordinary tools that will win admirers year after year.



Sketch Showing Progress of the Carving

STEEL SQUARE

ALFRED W. WOODS

Possibilities of the Steel Square

SHOWING THE USE OF THE STEEL SQUARE AS A CALCULATING INSTRUMENT THAT MAY BE USED IN PRACTICAL WORK, SUCH AS LAYING OUT THE DIVISIONS IN CHURCH WINDOWS, ETC.

WHILE it is an acknowledged fact that the steel square is one of the most useful of all the tools that go to make up a complete carpenter's outfit, still there are few who use it who realize the full scope to which it may be successfully applied. In the hands of one skilled in its use, it is wonderful what may be accomplished with it. It is a general instrument, not confined to any special trade. It is found all the way from the most humble village blacksmith shop to that of the most skilled cabinet maker in the land; it covers all the trades which deal with angles. Nor does it stop there; it reaches out into the scientific branches and is a valuable calculating instrument for finding the measurements and quantities of various things. The more workmen become familiar with what may be accomplished with the steel square the more in favor it will be.

The first illustration, Fig. 231, shows how five circles may be laid off so that they will fill a larger one of any given size. While this furnishes a problem that may seldom, or perhaps never, come up in the

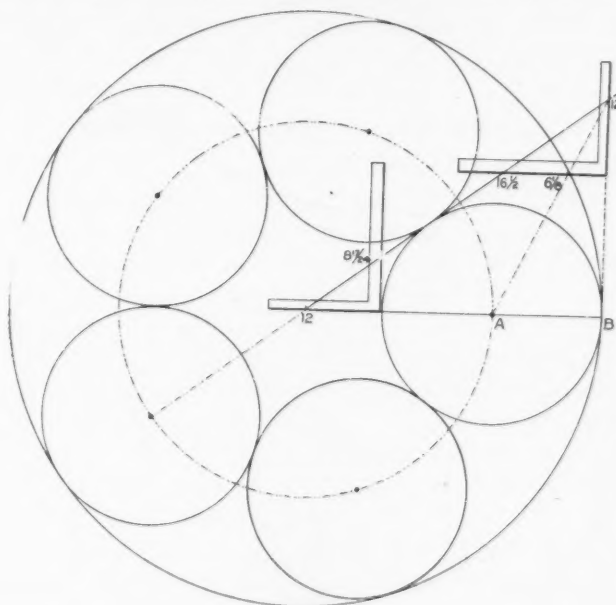


Fig. 231.

ordinary run of carpenter work, it is one that applies to the division of ornamental windows suitable for church work, etc., and is clearly in the range of the steel square. What is true of this is applicable to any

other number of circles contained in any sized circle. There is nothing strange or difficult about this solution; but, if required to be done by any other method, it would require a calculation in higher mathematics quite beyond the average man. Problems of this kind, and in fact the angle problems in all framing work, are solvable by the proportions of a right angle tri-

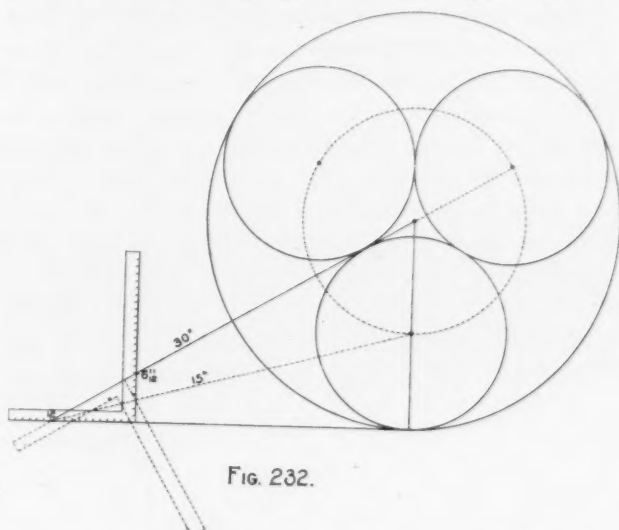


Fig. 232.

angle. The steel square furnishes two of the sides (the base and perpendicular) of the triangle and a line diagonally across from one arm to the other, furnishes the hypotenuse side and completes the triangle.

Twelve on the tongue is used as a starting point, because it represents one foot, and thereby renders calculations for other parts more easily determined. Of course, to do this successfully, one must understand the application of degrees to the steel square, which we have in the course of our work explained many times in connection with miter and roof work. The figures shown on the squares, Fig. 231, are the same as would be used in obtaining the miter for a five sided frame, which is also the basis for finding all of the lengths, cuts and bevels contained in the roof for a five sided building.

Now as to the solution for the five circle problem, it is as follows: The diagonal line on the square rests at 36 degrees; with 12 on the tongue as a starting point and resting at the center of the circle, the line passes at $8 \frac{17}{24}$ and continues indefinitely. As we have said before, the large circle can be of any

desired size, because the same proportion always exists whether it is big or little.

Now place another square with 12 on the tongue on the diagonal line, with the blade resting on the tangent from the circle; and it will be found that the line forms an angle of 54 degrees from the tongue, which is the complement of 36 degrees ($54+36=90$) and intersects the blade at $16\frac{1}{2}$. Now either of these squares will give the pentagon miter, the blade giving it for 36 and the tongue for 54 degrees. Next, to find the radius of the circle, five of which can be contained in the one circle as shown. This may be done by bisecting the 54 degree angle, giving an angle of 27 degrees and intersecting the blade at $6\frac{1}{8}$; continue this line to the line from the tongue of the first square. The intersection of these lines, as at A, will be the center for the desired circle; A-B will be the required radius; the other centers lie on the circumference of the large circle through A, and will be easily found by "stepping off" with its radius.

In Fig. 232 is shown another problem of this kind but in this only three circles are shown. This may be classed as the beginning, because a polygon cannot have less than three sides, and is therefore the beginning of the regular polygonal miters. Two squares are shown in this illustration, the object being to show the bisecting line of the 30 degree angle, giving of course an angle of 15 degrees; this application gives it without having to know the figures ($3\frac{5}{24}$) to take on the square. The rest is clear enough without further explanation; but, before passing this by, we refer to Fig. 233. Here the same figure as in the

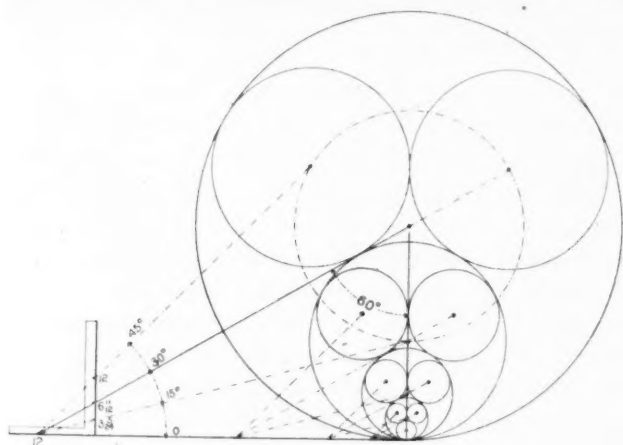


FIG. 233.

previous example is shown, but carried a little further. Four lines are shown radiating from 12 on the tongue and passing at 0; $3\frac{5}{24}$; $6\frac{11}{12}$ and 12 on the blade. These are not at equal points on the blade, but as applied to the divisions of the circle, they are found to be so and are 15 degrees apart.

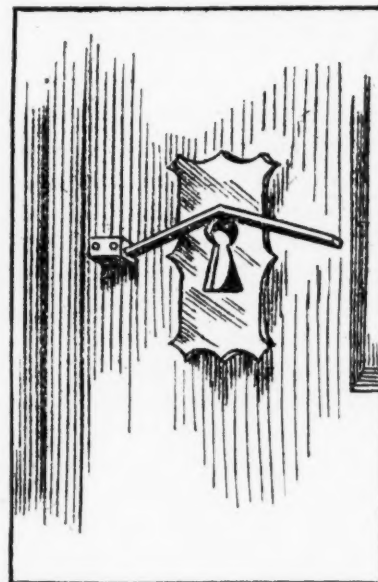
See what they have to do in the divisions of the circle. Here we have one large circle containing three other circles; these are in turn reduced a number of times, and might be reduced on down and down into the infinitesimal. Yet, as accurate as these illustra-

tions may seem to be, none of the angles (save one, which is 45 degrees) are absolutely correct. They are based on trigonometric calculations and are as nearly correct as can be. The figures given on the square are as near the equivalent as can be worked to and near enough for all practical purposes.

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A Novel Key Guide

A Cincinnati man has invented a key guide, which will prove immensely beneficial to the man who has the habit of remaining out late at nights. With the assistance of this little contrivance he will experience no difficulty in locating the keyhole. In fact, he can't miss it, no matter how dark it may be. The guide consists of a metal plate which is attached to the door so that it extends above the keyhole. The plate is bent in the middle, the point registering with the top of the keyhole. In the dark it is an easy matter to bring the key in contact with the guide. Intuition will direct it to the keyhole. The "night owl" will appreciate the value of this little device, and would welcome its installation.



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Circular Rooms Bad for the Mind

That circular rooms are distinctly bad for the mind is argued by the Chicago Journal. It says that experts in mental diseases who have made a study of conditions at the Minot Ledge Light attribute the unusual prevalence of insanity among the keepers of this lighthouse to its peculiar form of structure. There is no point, they say, on which the eye may rest, so it travels round and round in a maddening whirl. They, therefore, suggest that some means be devised for filling the curves and producing corners and angles. In support of their theory they cite instances of men who have lost their mental balance during long confinement in circular prisons, but have quickly regained it on being transferred to an ordinary room of corners and angles. Baron Trenck spent much of his time in prison making marks and corners to break the circularity of his surroundings and keep his reason from slipping away on the whirling and encircling walls. Casanova, an Italian engineer, who was imprisoned in a round tower, gives much the same testimony.

PRACTICAL CARPENTRY

How to Frame for Special Windows

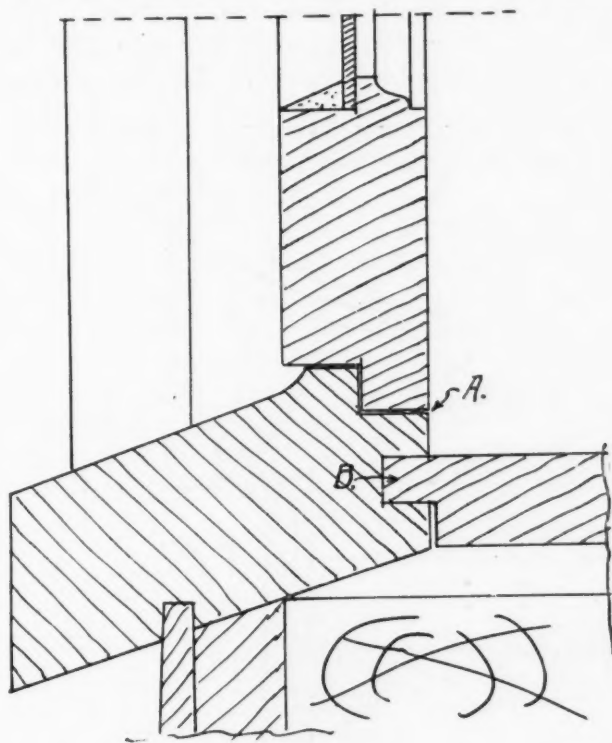
A STORM-PROOF CONSTRUCTION FOR SINGLE-SASH WINDOW CASINGS—METHOD OF FRAMING FOR CLOSELY-SET BAY WINDOWS—COST ESTIMATED

By I. P. Hicks

HOW to make a window frame for the attic or a single sash frame for any place, that will admit of hanging so the sash can be opened and at the same time keep out the snow and rain in stormy weather, is a problem that has caused the carpenter more or less study for years.

We have found no better way to accomplish the work than the arrangement shown in Fig. 1.

The sill is made with a lip and then rabbeted, as shown at A. The sash is also rabbeted to fit the sill. The sill is plowed at B; and the stool rabbeted to fit into the sill. This allows the sash to be hung at the top; and when closed over the rabbeted sill with the lip, it prevents rain and snow from beating in under



the sash. If the sash is tightly closed it is just about storm-proof,—so nearly so that not enough of rain or snow will get through to do any damage.

With the ordinary window sill it is impossible to

hang a single sash either at the top or on the side on account of the bevel on the sill; and then the stool is in the way. Our experience has been that almost any attempt to hang a single sash in the frame such as ordinarily made results in a very unsatisfactory job. If the window happens to be in some place much ex-

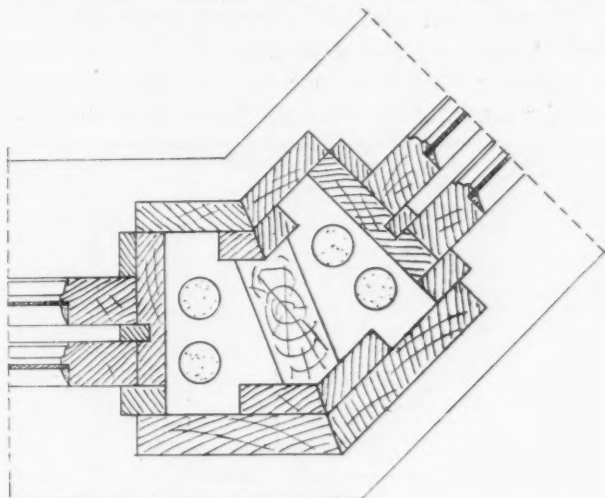


Fig. 2

posed, it will be found to be a great annoyance on account of leaks.

A frame constructed with the sill and sash rabbeted as shown in the sketch is as near storm-proof as it is possible to get and have the sash hung so it can be opened readily.

Another point in the construction of windows is in bay windows of the octagon pattern. Many bay windows are made so that the casings join in the angle. When casings join in this manner it is necessary to know just how to set the studding and just the exact width of outside casing necessary to use to make room for the weights, and have it finish up right on the inside.

Referring to Fig. 2, it will be seen that it requires an outside casing at least 7 inches wide to get the frame in; and then the studding must be set directly in the center of the angle. Wherever the frames join as in this case it is best to set a 2 by 4 stud in the angle as shown. It prevents the frames from drawing apart in

the miter. The sketch shows that 7 inches is the least width of casing that will do; and this would leave the inside casing to finish up only about $3\frac{1}{2}$ inches in width. The outside casings should be 8 inches wide then the inside casing would finish up about $4\frac{1}{2}$ inches, which is a better width to make the finish.

It is much better to leave a space of six to eight inches or more between the windows when this can be done, and put on siding with mitered corners. It makes a nicer looking job and is easier to finish on the inside when each frame is independent of the other. Care should be taken in setting frames for a bay window to get them evenly divided and all set to the same height exactly, so that in spacing up the siding there will be no difficulty in coming out right.

While we are on the subject of window frames it

will undoubtedly be of some interest to know about what the cost of the average window is, put in the house all complete—sash, glass, frame, casings, weights and trim. We will take a frame 24 by 30 which is the average size.

The frame will cost	\$2.25
The sash, glazed, double strength.....	2.40
Inside casings, stops, etc., yellow pine.....	.75
Sash weights, cord and hardware.....	.80
Carpenter labor for setting frame and finishing..	1.60

Total\$7.80

Thus we find that the average window figured all complete in a house is right close to \$8.00 and this figure is none too high. Windows with larger glass would cost proportionately more.

Notes on Stair Construction

SOME SIMPLE YET IMPORTANT POINTS TO BE NOTED BY THE DESIGNER AND BY THE BUILDER OF STAIRS—AN ATTRACTIVE ARRANGEMENT SHOWN

By Charles P. Rawson

UNTIL about the time of Queen Elizabeth, the stair case, now so important a feature in all houses, was of small note. Previously, stairs were built in every case on a circular plan, revolving around a central axis or newel. These were known as

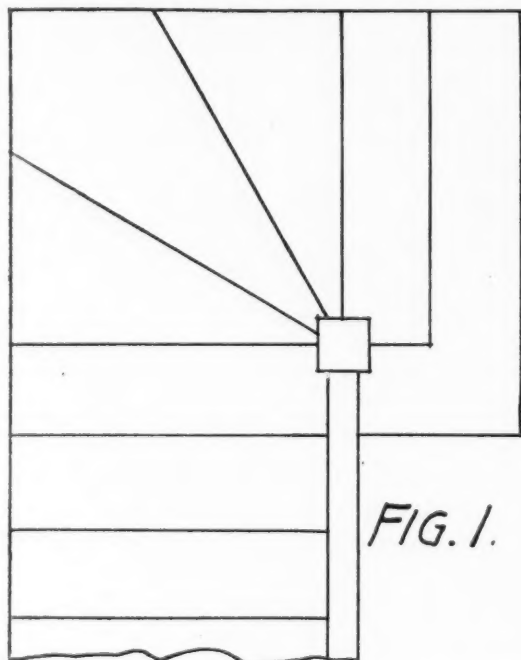


FIG. 1.

turret or corkscrew stairs. Stairs with wide straight flights were introduced during the sixteenth and seventeenth centuries and were made the leading feature in the mansions of the Elizabethan style. They were very massive in design with heavy oak balusters and enormous carved newels with ornamental panels. Many staircases of similar design but of lighter construction now exist in England, many of the more modern ones having cast-iron railings. In most houses built today the stairway is the most important feature, nevertheless its construction is frequently and, in fact, usually left with little thought as to design or convenience.

In planning stairways, care should be taken to have sufficient room so that the height of the riser is not too great. The distance from floor to floor in inches should be divided into a certain number of vertical distances, each of which is termed the rise and which is usually from 7 to 8 inches. A rule frequently applied in proportioning the rise to the width of the tread is, that the rise in inches multiplied by the run or tread in inches shall be about 70 or 75. According to this a 7 inch riser will call for a $10\frac{1}{2}$ inch tread. The workman will readily see from this rule that the greater the rise the less the run, and the less the rise

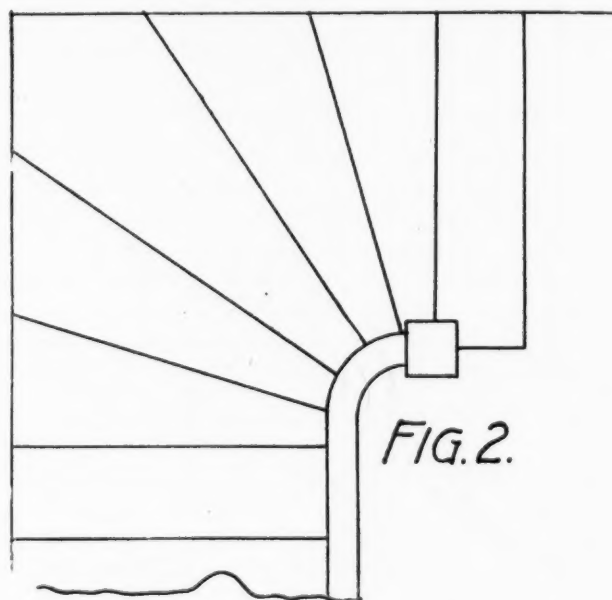


FIG. 2.

the greater the run, the proportions varying to suit different conditions.

Winders as shown in Figure 1 should never be used if it is possible to avoid them, their great objections being the narrowness of the tread along the line of travel, which is a line generally taken about 14 inches

from the rail. Where they are absolutely necessary, it is better that the rail be made continuous with the ends of the treads in the form of a cylinder and the risers not radiating from a common center, as shown in Fig. 2. Where angle

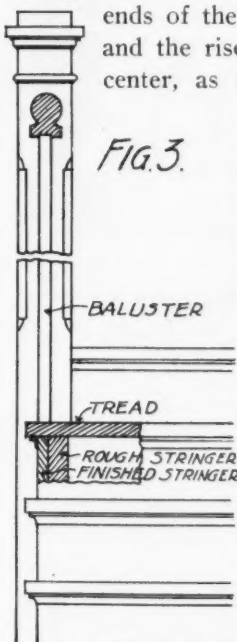


FIG. 3.

posts are used care must be taken so that they are centered on the carriage with the rail centered on the angle posts. This should bring the outside balustrade flush with the finished string, as shown in Fig. 3. The height of the rail should be about 2 feet 4 inches or 2 feet 6 inches above the tread, measured on a line with the face of the riser; and on landings the height of the rail should be 2 feet 8 inches above the floor.

In these days the mills are very accommodating, and will, as a rule, work out any stair problems that the carpenter may have.

The principal thing for the carpenter to consider in planning a stair is to see that he has sufficient room to get the required number of steps and ample head room. If he is sure of these the mill

is sufficiently strong to carry the weight. They should be never less than 6 inches in the narrowest part. As a rule, it is best to put all of the rough frame work for the stairs in place before the lathing and plastering is done.

The stairway shown in the accompanying drawing, Figure 4, is one of unusual beauty and convenience. It is a decided departure from the ordinary design and may serve as a suggestion or help in planning. A residence illustrated in another part of this number shows such a stairway. A glance at the plan will show the ease with which the stairs are reached from all parts of the house. There are several other advantages to be gained in a stair of this kind, the principal ones being the saving of the cost of an open balustrade and the privacy obtained by the closed-in front, which is, however, so made as not to exclude the light. Economy of space, and the triple use as front, back and cellar stairs in one, is also to be considered.

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Electricity is a dangerous element—yet people make light of it!

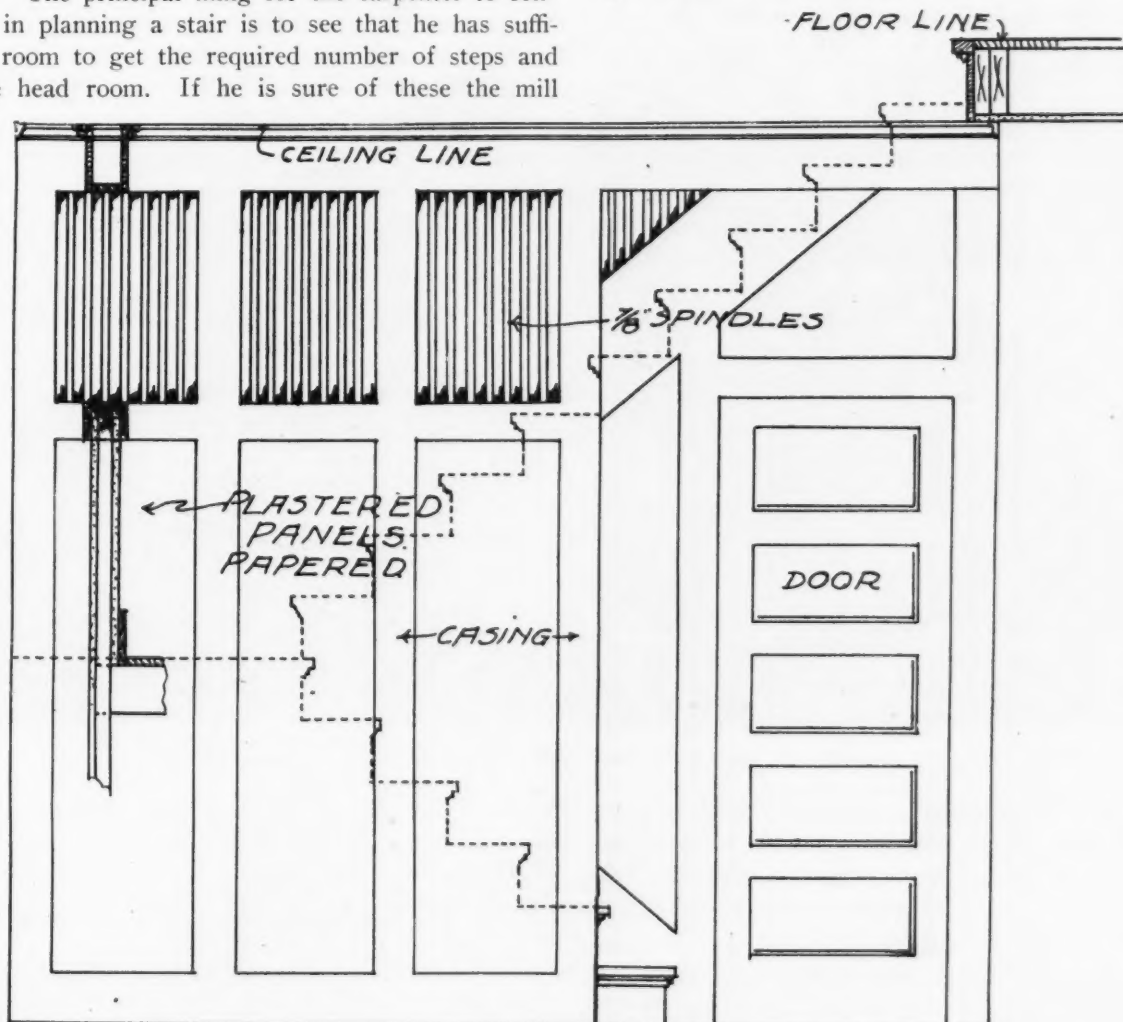


FIG. 4

will usually do the rest of the designing for him. In constructing the rough frame work for the stairs, care must be taken to have the stringers suf-

Don't forget that air travels with a spiral or circular motion, therefore round pipes for the furnace are better conductors of hot air than square ones.

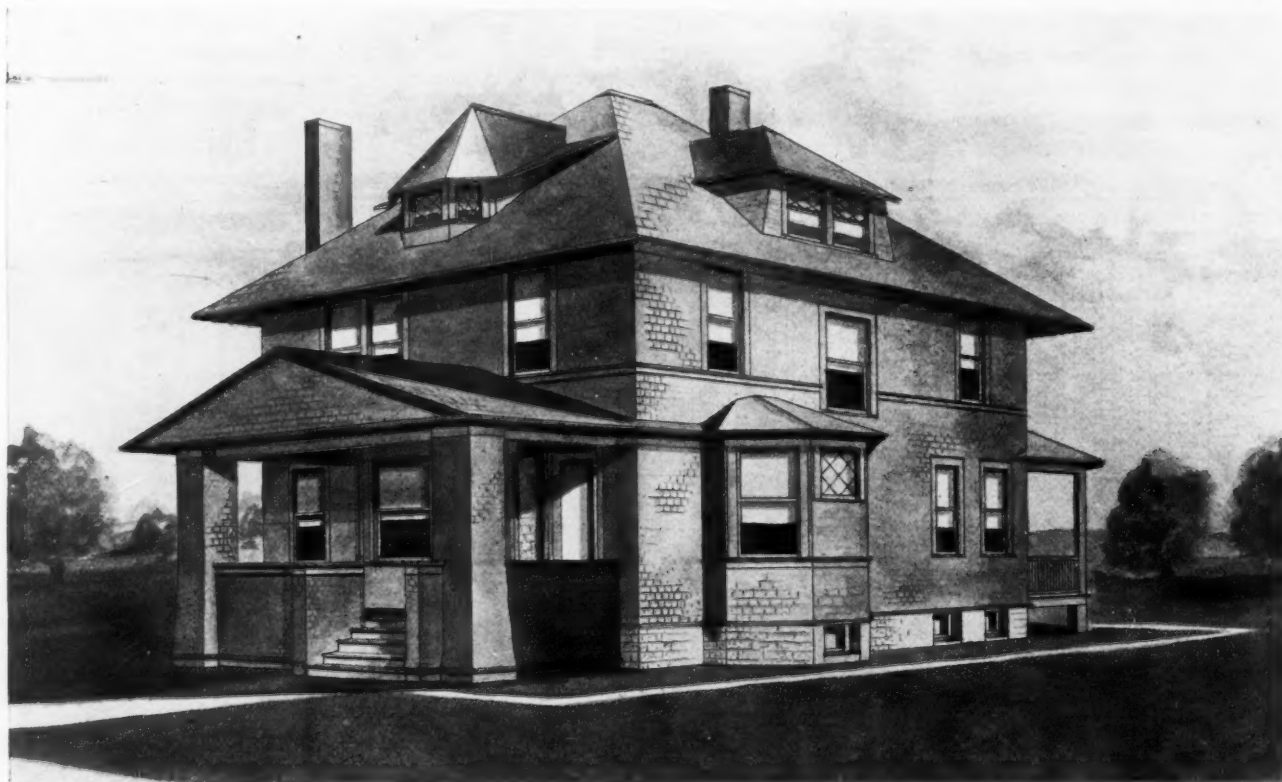


Attractive House and Bungalow Designs

VALUABLE IDEAS FOR THE HOME-BUILDER—PHOTOS WITH FLOOR PLANS OF SEVERAL RESIDENCES OF VERY SATISFACTORY DESIGN

THERE are some houses which, by their very exterior appearance, their complacent and comfortable outlook upon life we might almost say, seem to radiate good cheer and hospitality, extending to even the casual passerby an invitation to enter and be welcomed. Within, the same impression is

self in the spacious living room, a room 15 by 23 feet in size, very well lighted and inviting. Double doors separate this room from the dining room. To the right is a cosy little bay window room, to be used as a den. From an alcove between this den and the dining room the main stairway goes up. The arrange-



The Homelike and Comfortable Residence of Mr. Paul Hull at Wilmette, Ill.

gained; and the thought comes that—as is so often the case—the personality of the owner has been unconsciously expressed in the generous, hospitable residence selected. Such a house is here illustrated, the residence of Mr. Paul Hull, at Wilmette, Ill.

It is one of those broad, square houses that are always so roomy and comfortable; and a glance at the floor plans will show that this house is no exception to the rule. It is an eight room house, full two stories with attic. On the first floor, entering from the porch through a small vestibule, one finds him-

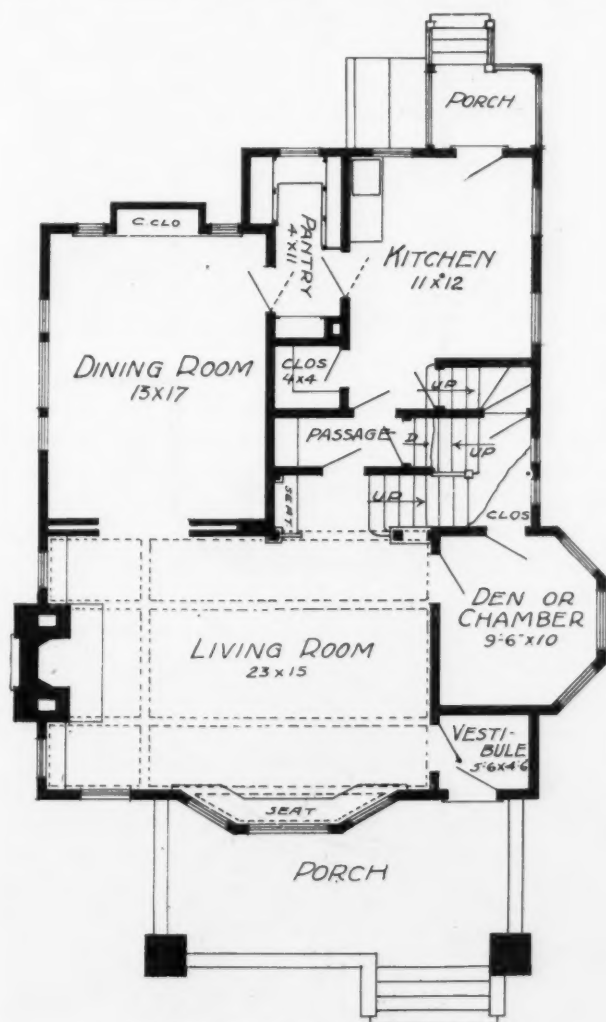
self in the spacious living room, a room 15 by 23 feet in size, very well lighted and inviting. Double doors separate this room from the dining room. To the right is a cosy little bay window room, to be used as a den. From an alcove between this den and the dining room the main stairway goes up. The arrange-

ment of this stair is especially good, providing for a back stair, and separating the kitchen from the rest of the house. The kitchen is proper size, is well lighted and convenient; the pantry and closets are well placed.

On the second floor are four nice bed rooms, each with large clothes closet. The hall is roomy, the bath room accessible. The house is of thorough-going construction, very substantially built throughout and finished in hard wood. The exterior is shingled.

An Artistic Bungalow

The American bungalow seems to be taking the different localities that it has reached by storm. And why should it not? It has opened up an unlimited amount of new thought along the lines of residence architecture and seems to have awakened many to the fact that moderate priced homes can be built without clinging fast to the old rules. That bungalows can be built just as comfortably and warmly as the older styles, and can contain all modern conveniences, has been proved. Also they seem to put new life into any community where new homes are being erected. The American people are looking for something new



First Floor Plan—Mr. Hull's Residence

all the time. They have not been afraid to test the bungalow; and it is standing the test well.

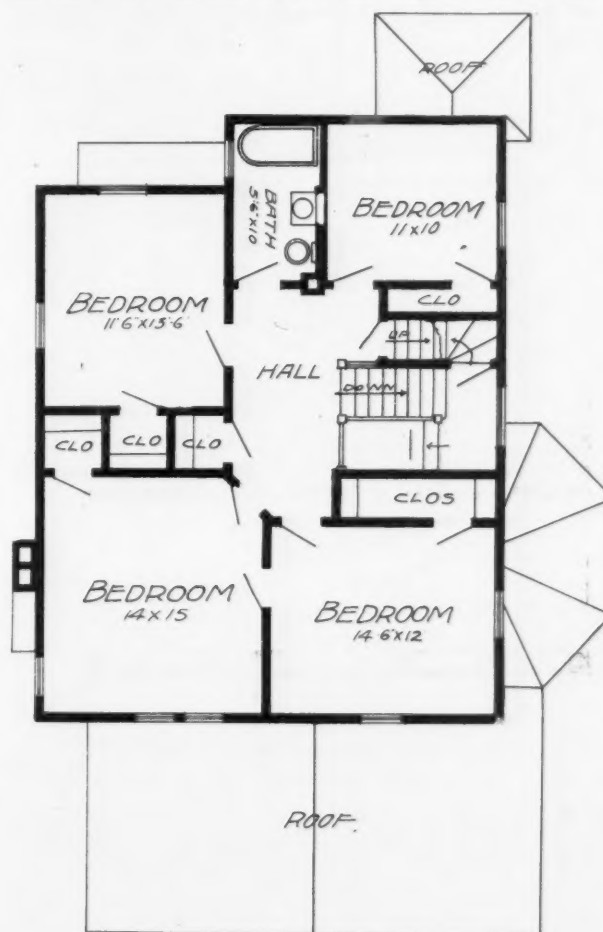
An example of what is being done along these lines in the more northern parts of the country is illustrated in connection with this, a practical, artistic bungalow, designed by Mr. B. F. Miller, and built for Dr. F. W. Slabaugh, at Omaha, Neb.

The exterior effect is very pleasing. The interior of the home is finished so as to harmonize with the exterior, and is modern in every respect. The design of interior trim is all special, being in accord with the bungalow idea. The special features of ar-

range are well shown by the floor plans, which are given on the following page.

A Comfortable Four-Room Cottage

A little cottage of remarkably pleasing exterior and with rooms conveniently arranged is shown in connection with this. It was designed by Mr. B. F. Miller, of Omaha, and built in that place for Mr. E. O. Carson. It contains four rooms and bath. There is



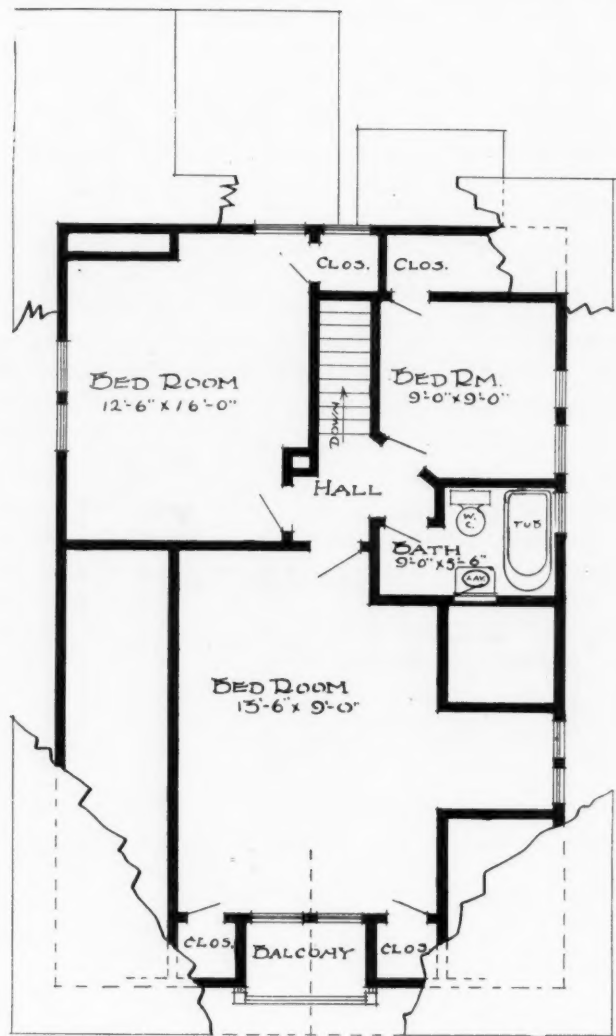
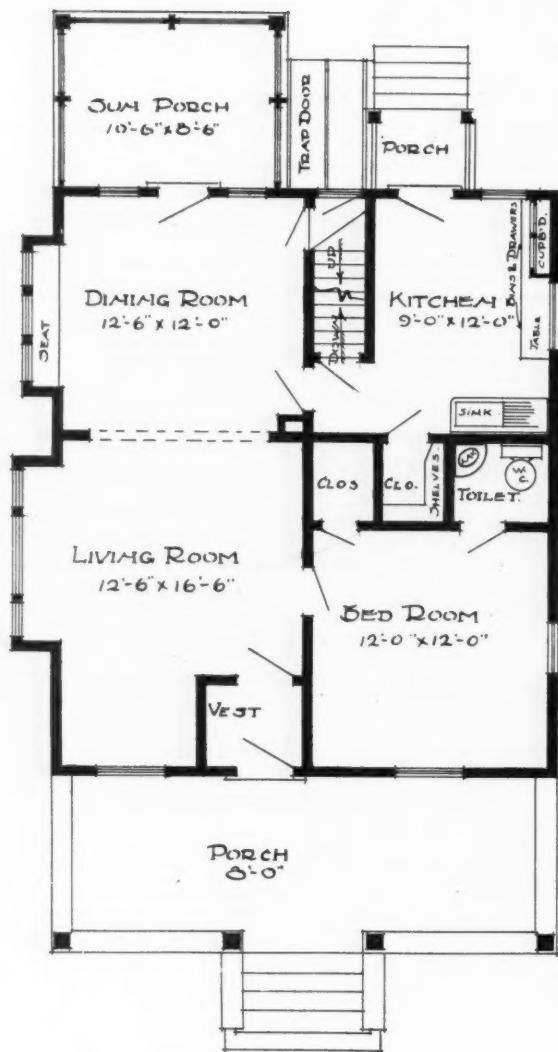
Second Floor Plan—Mr. Hull's Residence

a finished attic above for storage purposes; this also makes for warmth in the winter months and for coolness in the summer. A novel feature of the exterior is the belt course, from foundation up to window ledge of extra wide clap boards. This, with the prominent roof and wide, open cornice gives to the cottage a pretty bungalow effect.



Looking Ahead

M. Gustav Morin, a citizen of Paris, France, who owns a large apartment house, has taken time by the forelock—he has arranged a roof garden, with every facility as a station and a garage for airships. Nor is M. Morin alone in thus anticipating the needs of the near future. It is said that all new leases for buildings in Paris contain a clause for the consent of tenants to this innovation. Dogs and children are still barred in high-class flats, but the airship-garage clause will be inserted in all new contracts. M. Morin says



An Artistic Bungalow—The Residence of Dr. F. W. Slabaugh, Omaha, Neb., B. F. Miller, Architect



A Comfortable Four-Room Cottage, Built for Mr. E. O. Carson at Omaha, Nebr., B. F. Miller, Architect

that the day of aerial vehicles is here, but there is no place in Paris for them to land. There is, he says, too much traffic in the streets, and public places are "blocked with monuments." His garage is described as follows:

Iron uprights projecting over the roof form the support of a large shed with a second moveable roof, which can be opened on the approach of the flying-machine. There is also a space in the building for a toolshop and reservoir for gasoline.

The main trouble with "aerial vehicles" is that they persist in landing suddenly in the most inconvenient places. So far no airship has behaved for any length of time in a docile manner. A shed which "can be opened on the approach of the flying machine" would probably never catch one—the pesky thing would fall a-straddle of a monument or in the midst of a street "filled with traffic." The old-fashioned balloon always had a strong affinity for a brier patch or a mill pond. At its present stage of development the flying machine does not appear to have much edge on the balloon.

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What we don't know never hurts us half as much as what we think we know, but don't.

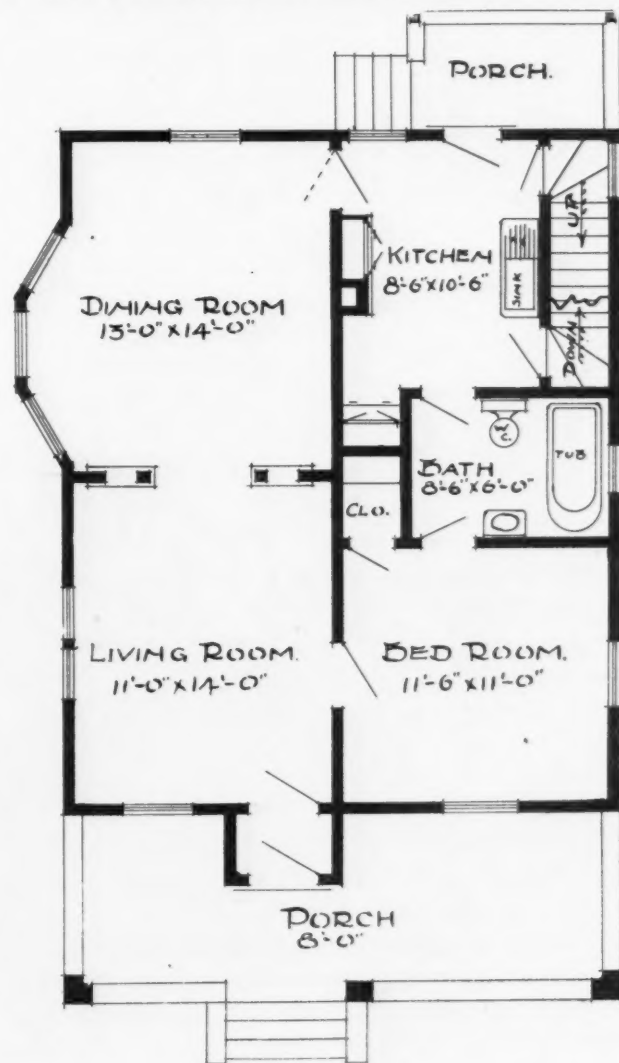
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Proper Tool to Use

Two Irishmen were passing by a jeweler's store that had a lot of unset precious stones in the window. They stopped and looked at them, when Pat said to Mike:

"How would you like to have your pick?"

"No," said Mike, "I would rather have me shovel."



Floor Plan of Cottage



THE HOME WORKSHOP

Ira S. Griffith

Modern "Straight-Line" Furniture Suggestions

ATTRACTIVE DESIGNS THAT CAN BE EASILY CARRIED OUT IN THE HOME WORKSHOP—LUCRATIVE SPARE-TIME WORK FOR THE WINTER SEASON

NOW that the holidays are over and our workers have had opportunity to make the lighter craft pieces for Christmas, we return to a description of the more pretentious pieces of wood craft.

In Fig. 2 is shown a settle of generous proportions in the sturdy style of the Dutch peoples. This piece should be made of plain sawed oak, either white

the slats a slight inclination from the vertical, an effect which, while extremely simple, is suggestive of comfort and serves to break the monotony of so many vertical lines.

It is intended that the seat shall be made solid extending over the rails to which it is to be fastened. The nosing or projecting edge of the seat should be rounded. Upon this seat is to be placed a well filled cushion of denim, burlap or Spanish roan leather. This cushion may be filled with hair or cushion cotton.

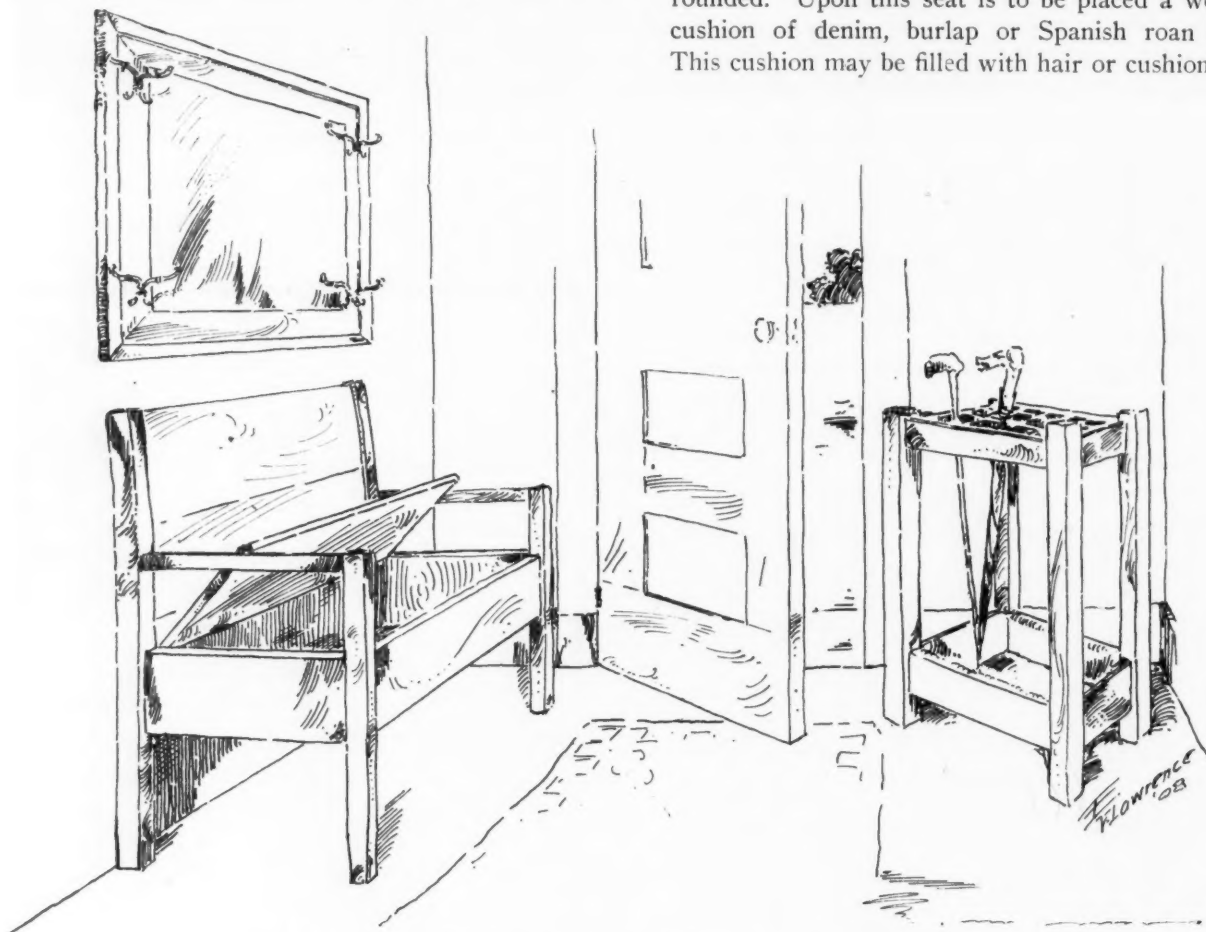


Fig. 1. Hall Furniture of the Modern "Straight-Line" Style

or red. All of the parts are to be thoroughly mortised and tenoned together as the honest appearance of the design demands.

A touch of originality has been added by placing the top rails near the outer surfaces of the posts while the rails into which the lower ends of the slats enter have been placed near the inside surfaces. This gives

The posts are four inches square with a length of thirty-six and one-half inches. The seat is twenty-three inches deep. The length may be varied to suit the worker's desire, five or six feet being usual.

A chair also of Dutch design and having a flag seating is shown in Fig. 4. To one accustomed to French creations of such light construction that one

fears to sit upon them for fear of being precipitated to the floor, these designs ought to appeal.

The sewing table, Fig. 3, will appeal to the ladies.

and height over all thirty-six inches. It should be made, as should the umbrella stand as well, of the same wood as the mirror and be given the same finish.

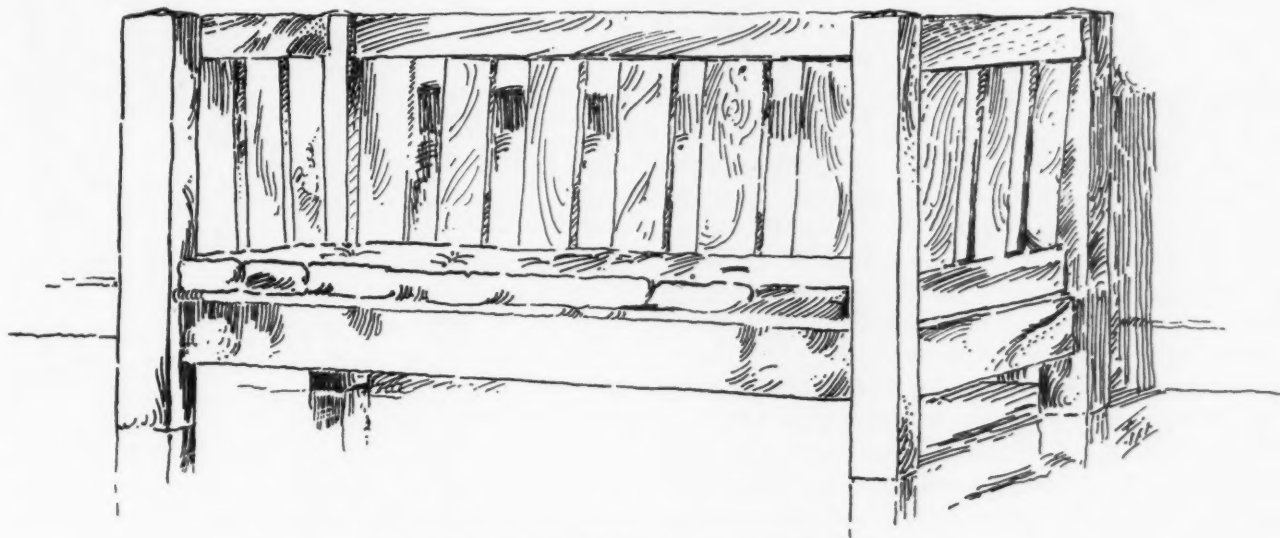


Fig. 2. A Sturdy Dutch Settle of Generous Proportions

What one has not desired just such a piece of furniture? It is pleasing in design, can be placed in any room in the house and will be in accord with its surroundings. It has drawers in which to keep the one hundred and one little knick-knacks that go to make up a sewing outfit. The top, too, while but eighteen inches long and wide has two leaves that can be raised when desired so as to make a working surface thirty-three by eighteen inches.

The height is twenty-nine and one-half inches over all. The construction is of the usual kind. The two drawers are to be carefully made and fitted, their sides being dovetailed to the fronts, blind. The knobs for the fronts can be purchased, as can the swing brackets that support the leaves. Two pairs of plain butt hinges will be needed, these are to be fastened to the under side of top and leaf.

The finish for this table should be selected with reference to that of the other pieces in the room in which it is to be placed.

A well furnished hall is shown in Fig. 1. These suggestions are somewhat out of the ordinary, but are according to dictates of late furniture design. These pieces may be made of plain or quartered white oak. The mirror should be furnished with beveled plate glass thirty-two by eighteen inches. The frame for this should measure forty-two by twenty-eight inches and can be made in two parts for convenience in working it, though a one-piece frame is better construction. The corners are mitered, splined and glued after each part has been rabbeted for the glass. Hooks of appropriate design and material can be purchased at the hardware dealers. Their location is clearly indicated in the drawing.

The companion piece, the settle, is to be dimensioned as follows: Length over all forty-two inches, length of seat thirty-seven inches, depth sixteen inches

To make for comfort the rear posts are inclined from the vertical at their tops, quite similar to those of chairs. The seat is made in box design so that

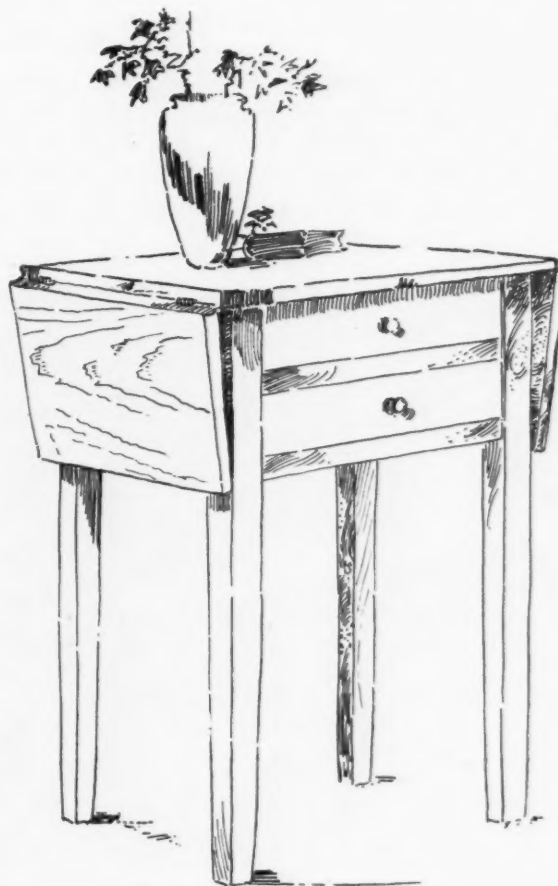


Fig. 3. A Handy Sewing Table

rubbers may be kept therein. The rails, which are mortised and tenoned into the posts, form the sides of the box. They are rabbeted on their lower edges and a bottom of matched stock is fastened to them.

The seat which is hinged to the rear rail forms the top of the box. It should be cleated on its under side to give to it the necessary strength.

A feeling of need for such pieces in the hall as are here pictured has been experienced by most home-makers. A mirror large enough to permit ladies of varying heights to view the placing of their hats; a settle, upon which to seat one's self comfortably while placing rubbers preparatory to an exit and in which to keep rubbers when they are not needed, are as necessary as any other pieces of furniture about the house. The umbrella stand, too, is a great convenience if not a necessity. Its utility lies not alone in its providing a place to set the dripping umbrellas; it provides a permanent place to keep dry umbrellas.

This design provides place for fifteen umbrellas. It is twenty inches long, twelve inches deep and twenty-nine inches high. The rails are mortised and tenoned into the posts thoroughly and the apartments are quickly and easily made in an ingenious way—formed by cutting cross-lap joints at the intersections

of the different members. The ends of these members are tenoned into the top rail, thus making a very complete piece of work.

The pan which is to receive the drip is made of zinc. It might be made of copper, if one cares to go to the added expense. It is made of one piece of metal, the corners being properly folded and hammered. A neater job results if instead of folding the corners

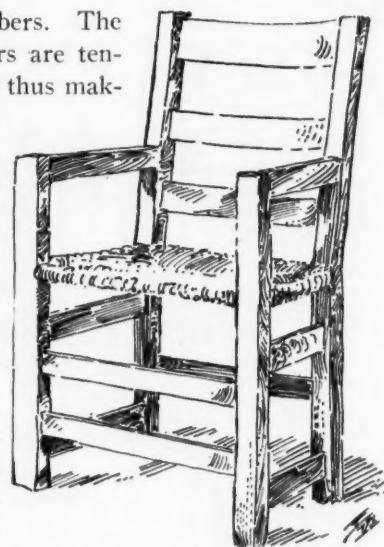


Fig. 4. A Strong Comfortable Chair

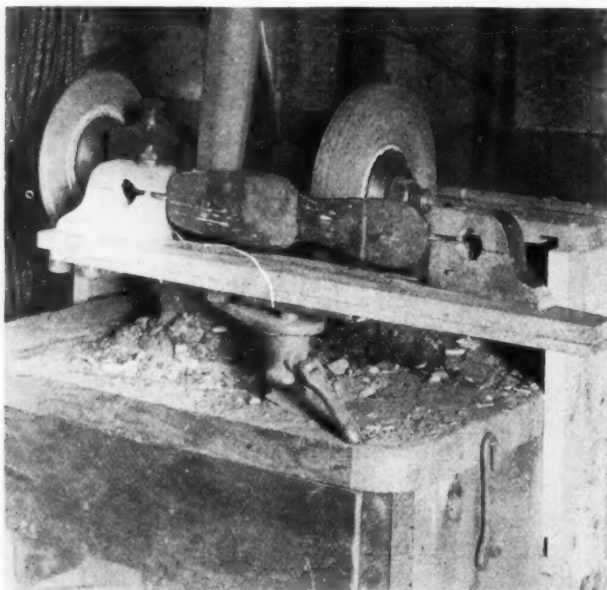
they are "drawn to shape" with the metal beater's hammers, as fully described and illustrated in the Home Work Shop Department last month.

A Device for Grinding Skates

TIMELY SUGGESTION TO CARPENTER SHOP MEN IN REGARD TO WHAT MAY BE A LUCRATIVE "SIDE LINE" FOR THE WINTER MONTHS

By W. D. Graves

SINCE the Creator, in His beneficent kindness, did not constitute the woodworker so that he can hibernate, it becomes necessary for some of him to help out the scanty income which comes his way during the winter months, by many odd jobs that are not strictly in the wood-working line. One of these,



Simple Clamp for Holding Skates

which often serves to furnish my good friend Blaysdell with a crust to gnaw, is the grinding of skates.

The boys are getting particular, now-a-days, and he had considerable difficulty in devising a simple rest

whereon to hold the skates with sufficient rigidity and accuracy, till he hit upon the one shown in the accompanying photograph. The main difficulty lay in the fact that there were so many different kinds and sizes of skates in use; but the one has yet to appear which cannot be held by this device.

On a flat piece of board are bolted the wooden clamps shown, gripping the ends of the skate runner. The bolts through these pass through slots in the base, so that any length can be accommodated. The whole slides freely on the flat rest of the emery machine.

Grinding crosswise, with an eight inch wheel, gives just the right degree of acuteness to the edges. A fine wheel is used and a slight lengthwise rub with an oil-stone removes all the "feather edge" in a moment.

+

O-oh!

Cashly (at the club)—Is your wife entertaining this winter?

Stockson—Not very.

+

Universal Opinion

"What do you ask for this plaque?" asked an old gentleman of the pretty girl in charge of a church fair booth.

"Five dollars," she replied.

"Aren't you a little dear?" queried the o. g.

"Well," answered the p. g., blushing, "that's what the boys all tell me."



CONCRETE CONSTRUCTION



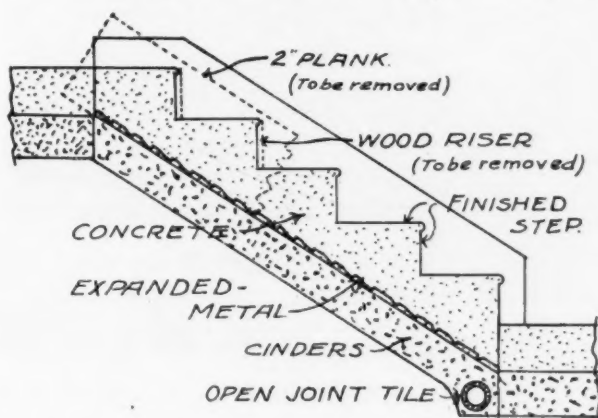
How to Build Concrete Steps

THE FITNESS OF CONCRETE FOR TERRACE STEPS—PRACTICAL SUGGESTIONS AS TO THEIR DESIGN, CONSTRUCTION AND FINISH

ONE of the most important of the many forms of concrete construction, and one that the majority of workers are called upon very frequently to deal with, is that of concrete stairs or steps. These usually occur in connection with cement walks, carrying the walk from one level to another over uneven or terraced ground. They are of many sizes, shapes and designs—ranging all the way from the straight, narrow, single step in the back kitchen walk to get down to the ash barrel level, up to the long and broad, gracefully curved, imposing flight leading up to a nation's capitol. And both these uses are served equally well!

Concrete stairs and steps are of two classes, those of the monolithic or one-stone form, and those that are molded in pieces separately and then put in place. The former are the more common. There are many opportunities—in the grounds about country residences, for example—for building this form of concrete steps to advantage, adding much to the general appearances in each case.

Before going into the mechanical problems of the



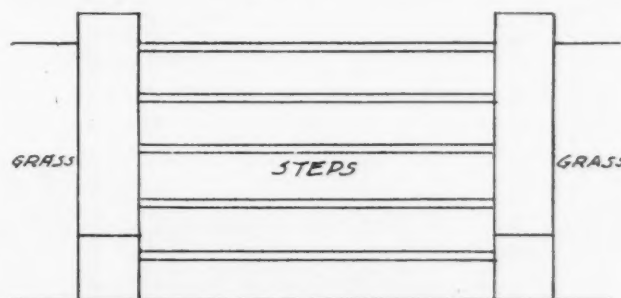
SECTION

work, the proper proportioning of treads and risers should be considered. The risers, the edge or vertical section of a step, should not be less than 6 inches or more than 8 inches, while the tread, the top of the step, may vary from 10 to 14 inches. Where it is intended that more than one step may be taken on a tread a width of 30 inches should be provided. This, of course, would be in a series of steps out of doors, as on a terrace or hill.

The foundations for all steps should be extended

below the frost line, or have a porous base with a drain situated at the lowest point to allow the water to run off. It is essential, too, that steps should be wider than the walk or opening from which they lead, to prevent their having a cramped appearance, and to give them an artistic effect. The tread should have a slight projection, as a plain molding effect, and should slope sufficiently to allow water to run off.

To prepare for steps on terraced grounds, excavate on the slope, allowing for four inches of sub-founda-



ELEVATION

tion and four inches of concrete. Put in the sub-foundation of cinders or broken stone or bricks, providing a drain at the lower end to carry off any water that may accumulate. Concrete work often is ruined by water freezing under it and expanding. Place a plank along each side of the proposed steps, providing one wide enough to take in the riser of each step. The planks should be well braced their entire length to prevent any bulging. Lay a strip of woven wire fabric, or other reinforcing mesh, of a width nearly corresponding to the width of the steps and the full length of the steps on the slope. The next operation is to spread on the wire a layer of concrete about three inches thick, consisting of one part Portland cement, three parts clean, coarse sand and six parts broken stone or gravel. Sufficient water should be used to make a mixture that will work through the wire cloth and completely surround it. Tamp well and permit the concrete to stand for twenty-four hours.

Starting at the top, place the boards between the planks to form the risers of the steps. The inner top edge of each board should be grooved in a circular form to form the bottom of the nosing of the tread. Each board should be fastened securely to the planks. Just before the next mixture of concrete is applied

the base of the concrete laid before should be wetted. The forms should be filled with a mixture of cement mortar, consisting of one part cement and two parts clean, sharp sand. Trowel the top and round at the edge to conform with the groove in the riser board.



Storage Magazines on the Isthmus of Panama

Two new stations for the storage of explosives are to be constructed on the Isthmus of Panama. Each station will comprise a dynamite magazine with a capacity of 300 tons, a detonator house and a house for a watchman. Hollow concrete blocks 12 inches thick will be the material used in the walls of the magazines and detonator houses. Tests have demonstrated that this material is proof against a stray bullet and yet not so hard or tough as to become a missile in case of an explosion, as it will disintegrate like brick. A 3-inch layer of concrete reinforced with old Belgian rails and waterproofed will form the roof, which is to serve the double purpose of keeping the explosives dry and cool. The floor will be a 3-inch layer of concrete, on top of which 2-inch planks will be laid loose. Lightning rods will protect these buildings. The dynamite magazines will be 112 feet long, 48 feet wide, and 9 feet high inside. The roof will be supported by the walls and by posts from 12 to 14 feet apart. It will be very flat, the pitch from the center to the walls being only 2 feet 3 inches in 24 feet. Two wooden doors, 7 feet 9 inches by 4 feet, cased in sheet iron, will open in the front; and two windows, 1 foot by 18 inches, on each end of the building, 5 feet 6 inches above the floor, will supply light. Ventilation will be provided by air flues opening near the roof. The interior will be one large room in which 300 tons of dynamite can be stored in boxes piled not more than 7 high. The detonator houses will be of the same construction as the magazines except that they will have a double roof consisting of a ceiling of reinforced concrete and a wooden roof covered with corrugated iron. They will be 33 feet 6 inches long, by 17 feet 3 inches wide, and 10 feet high inside. In one of the narrow ends will be a door 7 feet by 4 feet, and opposite it a small iron window.



How to Paint Over Cement

It is not safe to paint over the surface of cement until it has stood exposed to the weather for about one year unless the surface has first been sized with acid water to kill the alkali, and even then there is some danger of bad results. Here is a somewhat tedious method for preparing and painting such a surface, but it has the sanction of some of the best painters, says the *Master Painter*. Slack one-half bushel of fresh stone lime in a barrel and add in all 25 gallons of water; when slacked and cold, add 6 gallons of the best cider vinegar and 5 pounds of best dry Venetian red. Mix well and then strain through a fine wire

strainer. Use it when about the consistency of thin cream. Give the cement surface a coat of this and after standing a day or so apply a coat of red lead and linseed oil paint. After this has dried you may paint the surface any color you wish. Some jobs require two coats of paint over the red lead paint. In this case make the second coat of paint serve as filler and paint both. This second coat may be made with plaster of paris and oil of the consistency of buttermilk. Then break up some white lead and oil to make a paint the same consistency as the plaster paint. Now take equal parts of each of the two mixtures and "box" them together, and thin to a working consistency with turpentine. This second coat should be applied as heavy as possible, or as heavy as you can spread it well. After this coat is dry apply your next and finishing coat of paint, which should be quite glossy, or about as you would for the last coat on woodwork outside. The object in giving it this plaster paint is to prevent the running and wrinkling of the paint where considerable paint is to be applied to the surface. And it must be made to dry quickly.



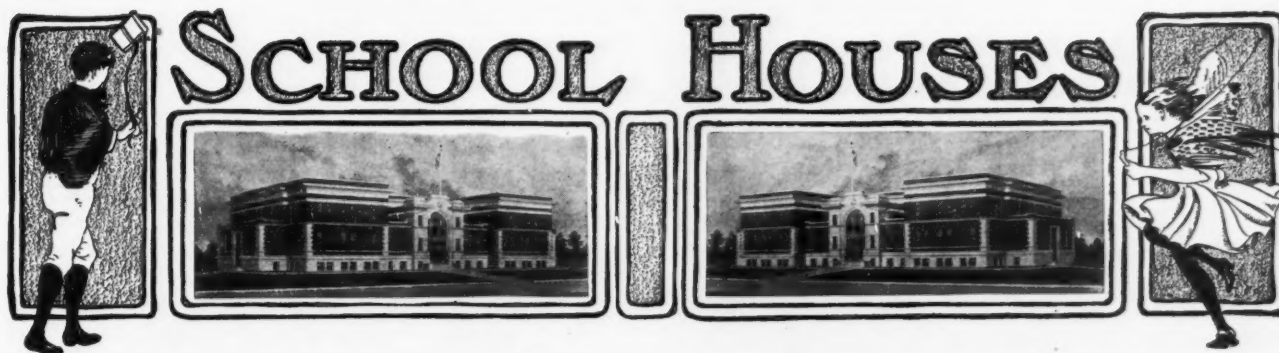
A Canadian Cottage

A style of house that is used more than any other in Canada is shown in this illustration. It is a one story brick cottage containing five rooms, heated by a small hot air furnace placed in the back part of the cellar.



The furnace is usually partitioned off because Canadians like to lay in stores of apples, pears, potatoes and a number of other winter vegetables, and they want a cold cellar to preserve them properly. In the towns and cities of Ontario especially, these one story houses may be seen in large numbers.

The hall is in the center, there are two bedrooms and a bathroom to the left of the hall, to the right is the parlor and dining room, while the kitchen and laundry occupy a wing in the rear. They are neat, cozy, comfortable cottages, suitable for small families, they almost always look well and you generally find them along pleasant streets with good sidewalks and splendid maple shade trees. There is generally an air of thrift about them, showing that the people living in these houses enjoy more than the average amount of the good things of life.



An Attractive School of Modern Design

PERSPECTIVE AND PLANS OF A VERY CONVENIENTLY ARRANGED EIGHT-ROOM SCHOOL BUILDING—
FEATURES OF SPECIAL INTEREST NOTED

WE ARE showing this month plans of a school building, an example of the Modern Art in architecture as it is modified somewhat and made conservative, to conform with our public school traditions. The resulting design is rather striking in outward appearance, is thoroughly practical in construction and interiorly, embodies the most modern

"straight-line" idea of the New Art. The terra-cotta ornaments embedded in the walls are also in accord with this.

The floor plans on the next page show the very satisfactory arrangement of rooms, four on each floor, each with coat-hall. There is also an office for the principal on the first floor and a library on the sec-



A Practical School Building of Strong and Striking Design

ideas as to the disposition of floor space. It is the work of Geo. W. Ashby, architect.

The plan is in general square, with, however, the front face recessed for the entrance and the straight lines of the side walls broken two-thirds of the way back by a seven foot projection of the building on each side. This treatment adds a number of vertical lines and removes any tendency toward monotony in the general effect. The side walls are carried up above the line of the roof to form a low parapet, capped with stone. Continuous horizontal stone courses under the windows, on all floors, carry out the

ond. It is intended that the basement be equipped for toilet room, manual training rooms, heating plant, etc.

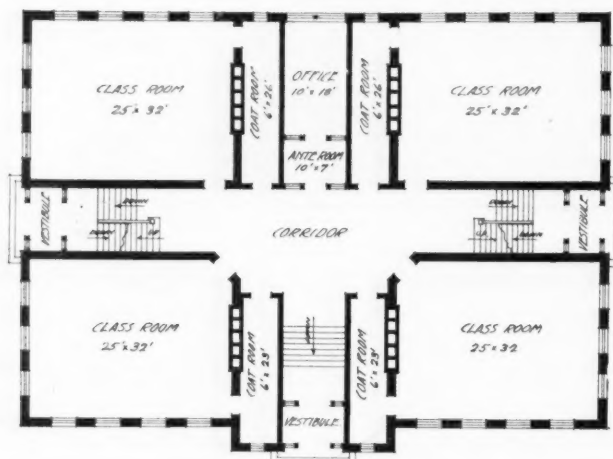
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The Weight of a Crowd

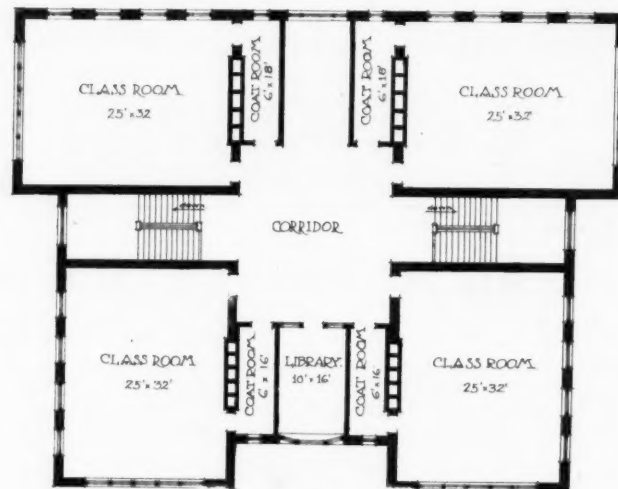
It has generally been understood that the weight of a crowd of people standing close together is about 80 pounds per square foot. This is a matter of some importance in designing buildings, more especially when the room or building may be packed with people. Most of the engineers' and architects' guide books give 60 to 90 pounds as the extreme weight. In the

Proceedings of the American Society of Civil Engineers, Professor Johnson describes some experiments he made to ascertain what people standing close to-

From figures obtained by Dr. Sargent, of Harvard Gymnasium, with the aid of a planimeter, it appears that the cross-section of a man standing 6 feet 3 inches



School Building—First Floor Plan



School Building—Second Floor Plan

gether really do weigh per square foot of floor area. Another point for consideration is the momentary increased load resulting from jumping, stamping and dancing, impact, as it is called, and which for the time may double the dead weight on a limited area.

Professor Johnson says: "Forty students, with an average weight of 158.8 pounds, assembled in the test chamber, resulted in the load of 176.4 pounds per square foot. Then forty men, weighing 163.2 pounds each, were put in the pen, with the resultant load of 181.3 pounds per square foot."

high may easily reach 117 square inches, with a corresponding weight of 177 pounds. This gives 218 pounds per square foot, which can be regarded as the maximum unit load of a crowd. In view of this evidence, it is impossible to avoid the conviction that live loads of 170 pounds per square foot are by no means unlikely, and that loads of from 130 pounds to 140 pounds must often occur in crowded buildings. Further, as Professor Johnson points out, the careful designer will remember that 180 pounds per square foot is well within the range of probabilities.

Success in the Handling of Men

"IT MUST be because I never yell at 'em." That is the theory put forth by John J. Ammerman, foreman of the gang of men who are building the new Fulton Theater in Brooklyn, says a writer in the *New York Press*, to explain the good feeling they bear toward him and toward each other, and which they have demonstrated by giving their services in the building of three homes for three of the men in the gang within the last few years. They are now engaged in erecting the third home. All this work is done in their spare time—on Saturday, half holidays, on Sundays and on days when their regular occupation is stopped by lack of material or some other cause.

Mr. Ammerman is a contractor and lives at Winfield. He is an old-time American "boss," for he keeps his men for years at a time, and, although the gang now working on the theater building includes Italians, Germans and Americans, most of them have been with him for a sufficiently long time to absorb his spirit of fairness and kindness, a spirit that has worked out into the light of publicity through the three monuments they have erected over in Queens Borough. They began this work several years ago

by helping C. Gerbe, Ammerman's brother-in-law, to build his home in Winfield. Then they helped Pete Julian put up his house in Maspeth. And now they are working on the future home of William Ammerman, the "boss's" brother, also in Winfield.

When a reporter told Mr. Ammerman what slight details he knew of the story and began questioning him as to the history of the home building, the foreman looked for a second as if he had been caught stealing sheep.

"I don't see how any paper ever found out about that," said he, apparently rather abashed.

"But how did you succeed in inspiring such a feeling among your men?" inquired the reporter.

"Why, I didn't do it," said he; "they did it themselves. It was they proposed it."

"Yes, but you must know that gangs of workmen don't ordinarily do things of that kind. There must be a specially good feeling in this crowd, and as men probably average up about the same everywhere, the difference must be in the boss. Don't you think so?"

The boss ran his hand through his hair. Then he delivered himself of the phrase that very evidently stands for his philosophy of life.

"Well," said he, uncertainly, "it must be because I never yell at 'em."

"How does that happen?" said the inquirer.

"I never yell at a man," said the boss, "unless I can't make him hear. If I'm up on a roof I have to yell at a man in the basement, and if there's machinery going I have to yell to make myself heard, but I never, under any other circumstances, raise my voice above an ordinary speaking tone.

"You see," he continued, getting interested in the subject, "I like a fast horse and I've always had one ever since I could afford it. I'm a hayseed myself. I was raised with horses. I learned when I was a boy that you couldn't get any speed out of a horse if you got excited yourself. The only way to get speed out of a horse is to keep cool. The minute you get a horse excited and nervous he's going to act up, you're going to have trouble and you ain't a-going to get the speed. Ain't that so?

"Well, a man is just the same as a horse, just exactly. You get him excited and nervous, and out of ten motions he makes nine of 'em 'll be false ones. You might better ease him along a little and let him make six motions and all of 'em right, or five of 'em right. You'll get more work out of him in the end. A boss that gets his men mad and hatin' him all the time ain't never to be no success. The men'll work, because they have to; they won't never put no heart nor good will into it.

"When I give a man directions I always tell him plain and straight what's to be done. I've done each particular thing that I ask my workmen to do myself, from the bottom up. The first pair of long pants I ever wore I put on to come down here to New York and go on a job under my uncle. If one of my men asks questions and wants explanations, I always give them to him, civil and patient, so that if he don't understand it's either because he ain't got brains enough or don't pay attention. If he doesn't do that work right I never yell at him. I never got mad enough to yell at anybody in my life. I speak to him just the same, and he doesn't know whether I'm mad or not. If he doesn't do his work it's either because he can't or he won't.

"In either case I don't want him. I give him what change is coming to him and let him go without any hard words. That's a boss' privilege, and that's what he's here for. And, in fact, the men under me never know when they're goin' to get the sack, because I never speak no different nor have no rows, and the only way they can tell when they're in danger is by what they know about the way they've been working. It's not a case of shirking when I'm pleasant and speeding up when I'm ugly. They know they'll never know when I'm mad till they get their time, and then it'll be too late to do any speeding up.

"I don't approve, anyway, of speaking to men under you as if they were animals, or an inferior sort of men. If a man's a good man I want to keep him.

He's valuable to me, and I respect him, and wouldn't speak to him in any different tone than I would do my own boss. If he's good enough to keep, he's good enough to respect. If he ain't good enough to keep I let him go, and that's all there is to it. A man isn't the boss' inferior simply because he's under him. If I were to leave my job tomorrow, there's a number of men under me that are fitted to take my place, but only one of them could have it. The rest of them wouldn't necessarily be his inferiors, because only one man could be foreman. And it ain't higher work than he's doin'. If he does his own work well, he's worthy of respect; and every respectable human bein's worthy of civil treatment according to my notion.

"Feelings," said the boss, "feelings are very important things in this world. Feelings make revolutions when they get excited enough. A man might get my best work out of me if he didn't treat me right, because I might give it through ambition, because I wanted to get on and make a reputation. But you can't expect those ideas to work with large bodies of men. Their work is going to be influenced by their feelings, and the man that can get the work out of 'em is the man that can keep 'em feeling good, and you can't make anybody on earth feel good by yellin' at 'em and jawin' at 'em."

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Yale Forest School

Founded in 1900 by a gift of \$100,000 from Mr. and Mrs. James W. Pinchot and sons, Gifford and Amos, the Yale Forest School, located at New Haven, forms an integral part of the university, which after eight years of healthy growth has become a most important appendage to the great seat of learning. It is located in Marsh hall, and contains fine laboratories for wood-testing and botanical research, besides lecture rooms, reading rooms and a library. An herbarium, containing 6,000 mounted sheets of native and exotic trees and the more important forest herbs is arranged for the use of the students, while a large collection of forest tree fruits and seeds is available for students of Dendrology. In connection with the plant at New Haven, the school is provided with a complete equipment in the field for instruction. This is located at Milford, Pa., where the work of the summer school is conducted, and contains over 1,000 acres. The forest school is a graduate department requiring for admission a college training, and covers a period of two years, after which a degree of Master of Forestry is granted.

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Went Him One Better

Englishman (in British Museum)—This book, sir, was once owned by Cicero.

American Tourist—Pshaw, that's nothing. Why, in one of our American museums we have the lead pencil which Noah used to check off the animals as they came out of the ark.



Sanitary Plumbing and Its Installation

MODERN IMPROVEMENTS IN PLUMBING BOTH IN WORKMANSHIP AND MATERIALS—PROPER METHOD OF ROUGHING-IN A COMPLETE RESIDENCE LAY-OUT

By Perry Weber Rathbun

THE subject of sanitation is receiving more attention today than at any previous time in the history of architecture. The increased size of living rooms, the provisions made for ample light and air, and the introduction of ventilation in connection with the heating system have done much; but more particularly there has been a wonderful improvement in plumbing, both in regard to the drainage system and to the water supply.

Improvement in workmanship, materials and installation, have so changed the character of plumbing, that new standards of comparison are required to determine the quality of work. For instance, while formerly plumbing fixtures were hidden in an ill ventilated, out of the way place, they now occupy a prominent place in the home of the intelligent, and have become an ornament as well as a necessity. Improvements in the fixtures consist mainly in the substitution of porcelain enameled ware for the plain iron, copper, earthenware and wood, formerly used; also in the prohibition of all mechanical closets.

Improvements in the system of drainage within a building, consist of the use of properly proportioned piping, the sizes of pipe being determined by calculation instead of by guess as of old. The perfection of a system of ventilation to keep the air within the drains comparatively pure, improvements in the shape of fittings, increased weight and better quality of pipe used, and the better methods of joining the pipe, all contribute their share to the improvement of the system as a whole.

Watch the Water Supply

Investigations have shown that more disease enters a building through the water supply than from the drainage system. Certain precautions are taken to minimize the danger from this source. The source of water supply is selected where there is the least danger of contamination or infection, and care is taken to protect the water from pollution while in storage. Also ample time is allowed for sedimentation and for the sunlight to remove the bacteria before the water is delivered into the distributing mains.

In some places the municipal supply of water is filtered through germ proof filters before it is delivered to the consumers. Where this is not done separate house filters can be installed by the consumers for their own protection.

Points to Consider

Some good points to bear in mind when figuring on installing sanitary plumbing are:

First; the types of fixtures are the best that are made of porcelain enamel and are set open and located in well lighted and properly ventilated rooms.

Second; there should be an adequate supply of water, sufficient in volume and pressure to supply and flush the various fixtures.

Third; the system of ventilation should be so planned as to properly ventilate every portion of the drainage system.

Fourth; a quality of piping should be used that will neither corrode easily or be affected by sudden changes of temperature; the joints should be made as strong as the pipes themselves.

Fifth; waste pipes should be large enough to carry off all waste matter discharged into them, and yet not so large as not to be self-cleaning.

Sixth; the system should be uniformly supported throughout its entire extent so that it can neither settle nor swing, nor pull on any of its branches.

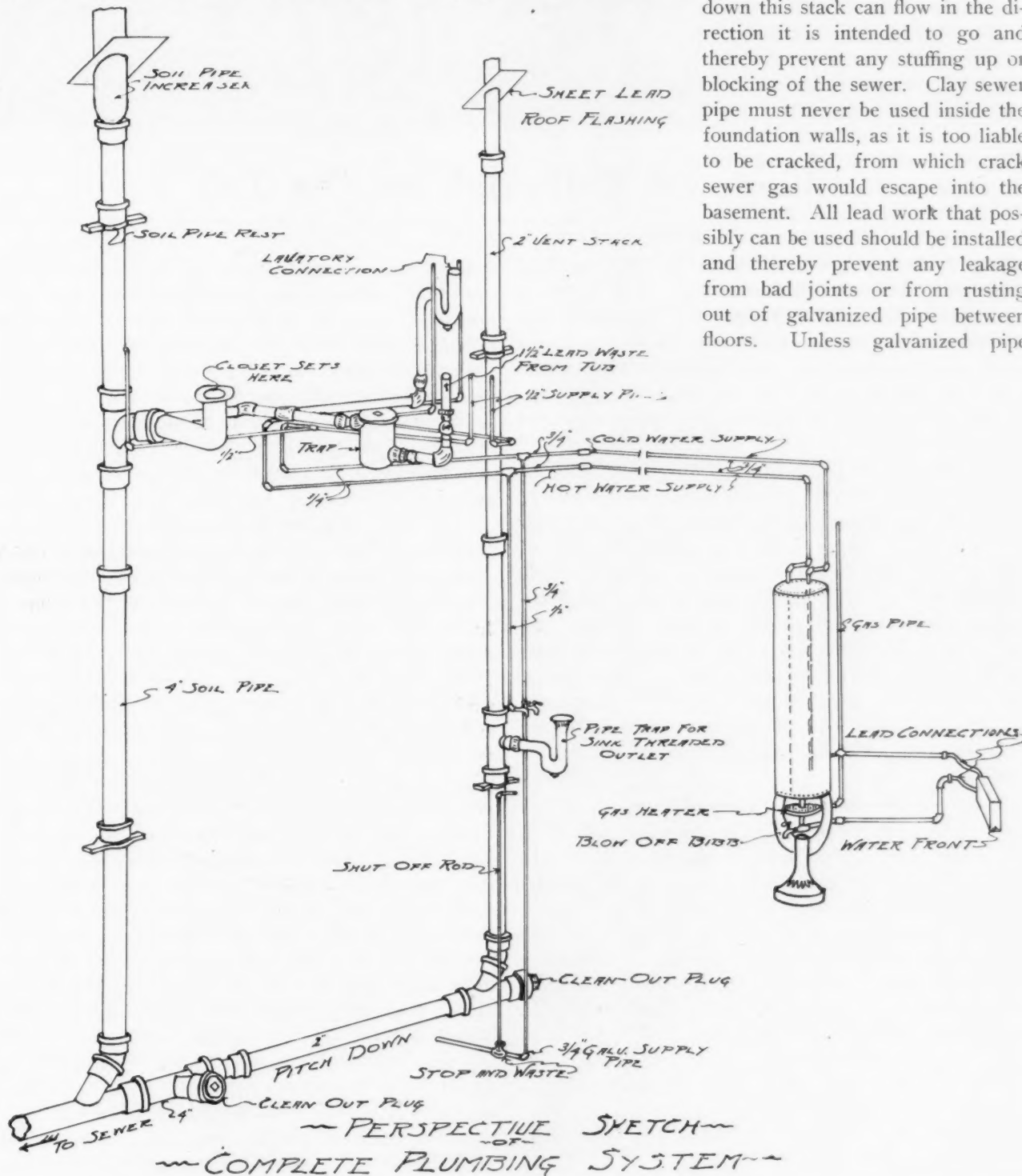
And seventh; the system should be so installed that turns and offsets are at easy angles so as not to interrupt the flow of sewerage in the main; cleanouts should be provided at such points that the inside of the drainage system is accessible throughout.

A Residence Lay-Out

You will find illustrated in the accompanying perspective sketch the correct method of roughing-in for a plumbing system in a residence located in suburban or rural district, where ventilating ordinance, or rather ordinance covering the reventing of all fixtures, is not in effect. It is sufficient that the system be installed with the ordinary vent stacks where a private sewerage system is installed. However, if more than one family were using the same line of sewer, it would be neces-

sary to vent the various fixtures. In this house the kitchen sink is located on the same side that the bath room is, but is a room farther back and is on the first floor. The range boiler is located at the other side of the kitchen, as is shown, with water front and prop-

farther front than the kitchen. It was therefore necessary to install this job with two ventilation stacks, one 2 inch stack for the sink and one 4 inch for the bath room fixtures. This 4 inch stack is connected at the bottom into a Y branch so that all matter passing down this stack can flow in the direction it is intended to go and thereby prevent any stuffing up or blocking of the sewer. Clay sewer pipe must never be used inside the foundation walls, as it is too liable to be cracked, from which crack sewer gas would escape into the basement. All lead work that possibly can be used should be installed and thereby prevent any leakage from bad joints or from rusting out of galvanized pipe between floors. Unless galvanized pipe



erly let connections from the range to same. There is also acetylene gas connection made to this range boiler or rather connected under it, so that any time the range fire is not wanted and hot water is desired, same can be procured in a few minutes by the use of this heater.

The bath room is located on the second floor, a room

is filled with water constantly it will corrode very rapidly, and in most cases will not last more than two years. You can therefore see that much time, expense and patience can be saved by installing lead work. The using of galvanized pipe for water service is very satisfactory if the pipes are constantly filled, thereby preventing any chance for air to cause corrosion.



Care of Millwork on the Job

THE GROWING IMPORTANCE OF VENEERED MILLWORK AND HOW IT MAY BE PREPARED IN THE SMALL SHOP—ITS PROPER TREATMENT ON THE JOB

WITH the growing scarcity and high price of lumber, the importance of veneer in house work, not only indoors but in interior millwork, is coming to be recognized. It is now pretty well understood that the planing mill man, and also the carpenter, who would be up-to-date, must be conversant with this veneering end of the business, and be prepared to do a certain amount of it.

Of course, the greater part of veneered millwork would be purchased from firms making a specialty of this class of work. Still, at times, the carpenter or the planing mill man is called upon to do some of the work himself, and so his equipment should include appliances for doing a little glue work. These appliances may be very simple or very elaborate, depending on his needs. It is better, however, to start with the simpler types, consisting of a good press, some flat cauls, and a work bench. This bench can be the regulation type of carpenter's bench, or can be altered to meet the peculiar requirements of veneering.

Preparation of Veneered Work

Usually, where large panels are made and it is necessary to match up some of the face veneer, one must have a long wide board, not unlike the regulation planing mill drawing board, but of larger dimensions. This board furnishes a flat surface on which to lay and fit together the face veneer and paste it over with tape. There are two kinds of tape made for fastening pieces of veneer together. One is a tape made of mucilage coated paper; the other is of thin cloth instead of paper. Some prefer one kind; some the other. The paper tape is cheaper and possibly easier to clean off when it is used on the outside. Some turn the jointed sides in, and then prefer to have the cloth tape for the work.

In this matter of making joints in veneer there is a difference of opinion as to the best method. Some put the tape on the face or outside of the veneer, so that after the two pieces are glued down on the core the tape can be cleaned off. Others prefer to use thin cloth tape and paste it on the under side, then when it comes time to lay the veneer they spread the glue right over the tape. In this way the tape will be im-

bedded in the veneer and it is easier to clean off and polish up the face where the joints occur. Of course if the veneer is extremely thin there is some danger of sanding through the veneer because the tape underneath raises it a little; but where the veneer is moderately thick the tape, by raising it a little at the joint, makes the joint clean off nicely without extra trouble. If the tape is used underneath in this way, it is probably well to use the cloth tape having a good adhesive.

Wait for Plaster to Dry

One of the most important things in connection with millwork in house building, both doors and millwork, is to exercise proper care in putting stuff in the house. In the first place, no veneered work, even veneered doors, should be put in a new house that has been freshly plastered, before the plastered walls are thoroughly dry. It is moisture from freshly plastered walls and things of that kind that probably do more harm to veneered millwork, and for that matter to good millwork of any kind, than anything else. We are generally in too big a hurry in building houses in this country; after the carpenter does the rough work he wants the plasterers to rush in and have the plastering done; then no sooner has the plaster set enough so he can get at it than the carpenter rushes in again and puts in the trim and millwork. It is bad enough if the millwork is solid stock and has been carefully dried and seasoned until there is not much shrinkage in it. Even then it will absorb moisture from the plaster and will swell up; in the course of time both the walls and the millwork dry out, and the latter shows cracks here and there due to shrinkage. Then the millman is abused for furnishing green lumber.

The whole trouble comes from using lumber in the house before the plaster is thoroughly dry. Some careful builders of homes who are not in a hurry to occupy the house and want to get the best possible for the money, let them stand an entire summer season after plastering before putting in the trim and cabinet work. This, of course, is too slow for the average house builder; yet, if one wants to get a good job, it is important to have the plastered walls of the house thoroughly dry before putting in the millwork. If

the doors and millwork are veneered stock it is particularly imperative to have the walls dry and all the moisture out of the building. Otherwise the work is likely to absorb enough moisture to make it swell, causing the veneer here and there to blister off. Then the maker of the veneered work is condemned. The house owner doesn't realize that even if the plaster has set there is still quite a lot of moisture in it. The best authorities say that, if practical, in freshly plastered houses, artificial heat should be applied until the plaster is thoroughly dried out.

Treat the Millwork Right

A well-known millwork man has said, "A hardwood door is the highest grade door manufactured, and should not be handled and exposed like an ordinary painted pine door. In the making of hardwood doors all parts are thoroughly kiln dried. All wood is porous, and if exposed in the white when dry will rapidly absorb moisture. The absorption of a great amount of moisture is liable to result in the doors warping and twisting, joints opening, or grain rising. Any of these difficulties can be avoided by the exercise of a little care. As soon as hardwood doors are taken to the operation or building in which they are to go, give them a coat of stain or filler to close the pores of the wood. Never place hardwood doors in a freshly plastered room. Be sure the plaster is thoroughly dry. Where possible, dry out the building with artificial heat. When a door has been fitted and hung, paint the top and bottom edges with a coat of good paint."

Some veneered panels, just as some solid work, are grooved in the back as a sort of safeguard against swelling from the absorption of moisture. These precautions are necessary, too, in ordinary practice, but the taking of a few more precautions to have the plastered walls thoroughly dry before putting up the woodwork is the safest plan of all, and will do more to insure the permanency of joints and the future beauty of the job than anything else.

Now, because veneered doors require this extra care does not signify that they are not worth while. Veneered work in this instance simply serves to point out some of the careless practice in connection with house building. It doesn't matter whether it is veneered work or not, the same precautions are worth while, even though they are not so imperative, with certain kinds of solid work, for there a higher degree of finish and excellence is expected. So the veneered work gets us up on a higher plane of house carpentry, where we find the same practice and precautions are worth while, no matter whether one is using veneered or solid work.

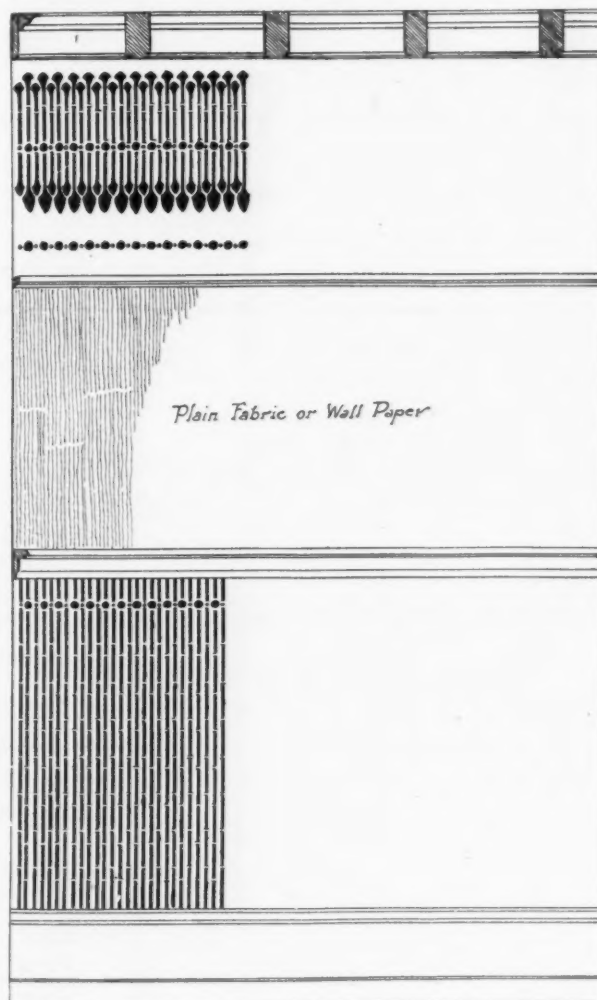


Stenciling Applied

The *Painters Magazine* presents the accompanying sketch showing stencil work applied in a pleasing way to the decoration of a hall; it suggests that this treat-

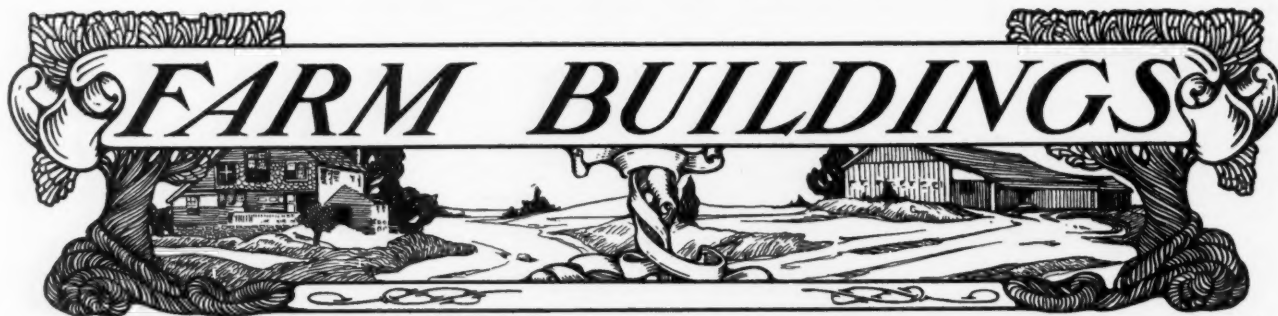
ment in a hall, library or dining room would be very suitable for use with furniture of the Mission, craftsman or other of the popular modern types. The decoration is based on the repetition of simple elements arranged with the view to forming an effective whole. The design is easily executed by means of stencils and the decorator can make many modifications in the effect by a simple variation in the width of the vertical stripes. For example, by increasing the longer stripes in the frieze until they were two or three times the width of the alternate ones a decidedly different effect would be produced. It will be noticed that the row of circles below the frieze simply repeats the pattern which is used in the frieze design, and the same details appear again in the dado.

The best coloring for a pattern of this character is a two-tone effect, the stenciling being one or two shades darker than the background. Greens, reds and



soft golden browns seem to be peculiarly appropriate for decorations in this style. The central portion of the wall, above the dado, should be hung with plain burlap or with an ingrain or duplex paper, either in a plain or in a soft two-tone cloth or fabric effect, to make a good background for pictures.

The sketch shows a beamed ceiling, the panels of which should be treated either in a cream or some other light tint, to harmonize with the walls.



A Compact General-Purpose Barn

PERSPECTIVE AND FLOOR PLAN OF A WELL DESIGNED FARM BUILDING, ARRANGED TO HOUSE ALL THE STOCK UNDER ONE ROOF

ON SMALL farms and sometimes on large ones a combination barn planned to accommodate different kinds of farm animals is wanted.

In this plan there is stabling for ten cows and five or six horses in the main part, while the lean-to is arranged for hogs and poultry.

Chickens are not wanted in a horse barn because of the lice they are likely to bring to the horses and because they are a nuisance roosting about on mangers, wagons, etc. But they must have a home of

had the hog house floor elevated so a wagon could back up to the alley door for loading and unloading both breeding stock and porkers. It is better to put the hogs on the far side, with the chickens toward the house, as the women are more interested in poultry and they want them handy for feeding.

It is doubtful if it pays to put plank floors in barns.

Concrete costs but little more and once done the floor is there to stay. Of course this suggestion must be qualified by local conditions.

In some parts of the country lumber suitable for barn floors is plentiful, while sand and stone must be hauled long distances.



some kind, and you don't find separate poultry houses on all farms.

Hogs also are unwelcome visitors in a horse or cow stable; but they are profitable animals and, if rightly handled, will pay well for good accommodations. You may not enjoy the odor from the hog pen, but the money they bring looks just as good as horse money.

When you can shut the chicken house and hog pens away from the main barn there is no serious objection to having them all under one roof.

One barn built after a plan very much like this

It is better to run the partitions in front of the mangers up to the ceiling and to make them of matched lumber for warmth, especially in front of the cows. There is another reason for a tight partition on the cow side and that is to shut out the odor. Theoretically a cow stable may be kept as clean and wholesome as a horse stable; really it should be cleaner because a valuable human food is being prepared in it. But there is no objection to fencing it away from the main part of the barn.

The ceiling over the cow stable may be as low as

seven feet but horses require more headroom—say nine feet—and the driveway must have about ten to let in a load of hay. In framing the barn it is just as easy to provide for these different heights and it is

best, though any paper will do, and add to it glue size and calcined magnesia until you have a mass like putty. Press this into the cracks with a putty knife, make the surface smooth and level with the floor. The filler may be colored as desired.



better to build that way for you gain in mow room overhead and you get a warmer cow stable that is more easily ventilated by so doing.

To Remove Old Paint From Exterior of Building

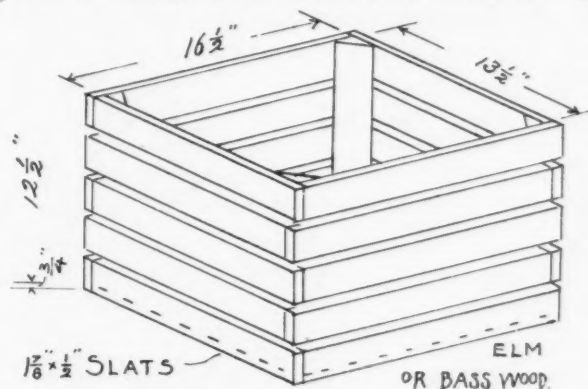
This is always a hard job; but usually concentrated lye in solution, half can to the bucket of hot water, will get the old paint off in good shape. Use an old broom to apply with, but do not scrape, as that will make the wood rough; let the lye eat off the paint or soften it, and then let it get dry. You can then more easily remove the old stuff; after that apply the paint. You do not need to get all off.

Crack Filler for Old Floors

You will find this formula a good one for the purpose: Make a pulp of paper, tissue paper being the

A Farmer's Bushel Measure

A bushel crate is a handy article. It should be made of strong, light-weight wood. The dimensions given will make it an even bushel measure. The



GRATE HOLDING A LEVEL BUSHEL.

nails should be clinched so that it will be strong enough to be thrown about without coming to pieces.

Old and New Methods of Learning a Trade

THERE was a time when men learned trades. Now they work at them. A few years since a man was not thought to be a carpenter until he had spent several years as an apprentice; now he goes to work as soon as he knows the difference between a rip saw and one that is not, without even stopping to learn why one of them will rip and the other will not.

One carpenter in his "confessions," tells the following: "When I first commenced work there was a lot of it to do, and I was kept busy most of the time. Even when I was not busy I found it paid to pretend I was. One day a lady asked me regarding a transom over a certain door. Up to this time I had no idea of what a transom was. I did not know whether it was made of wood or iron, was bought ready made or had to be built, and certainly had no idea what it was used for. I told the lady I was very busy just then, but would attend to it as soon as I had time. You may rest assured I put in good time looking up 'transoms' for the next few days and finding out how to do the work.

"My father was a carpenter, and one day, after I had spent several years at carpenter work, I asked him how he obtained the cut for rafters. He explained the method of using the square for the work. I told him I usually put two sticks up where I thought they would come about right, marked them and used them for a pattern. As yet I had not learned any other method.

"One time we were working on a barn. We knew the pitch of the roof and, besides, had several pieces which had been sawed off the top ends of the rafters lying about. Yet when one man desired to cut a board for the cornice, he proposed to take his bevel and make a climb to the peak so he could get the right angle to cut the board. Another man suggested that he apply the square, using the proper figures for the given pitch, or mark it from one of the rafter ends.

"Again on an old barn we were taking out studding which ran from sill to plate, and putting them in for girts. It was desired that the top be placed so as to come a little way up on the braces, running from post to plate. One man proposed to climb up and measure the length, and then did not know how to get the right slant to fit against the brace. Another man, noticing that one of the studs had been nailed to the brace in a verticle position, simply applied his square to assure himself that the cut was a mitre, measured off 1 foot less than the length of the other girts, marked the stick at an angle of forty-five degrees and sawed it off.

"You can readily see that it fitted and came up 6 inches above the bottom of the braces.

"Then we hear of a man who says he can cut three braces for a 3 by 3 foot run, from a 12 foot stick; in

fact, he has done so lots of times. While we admit that a man must know 'how' in order to get these three braces from a 12 foot stick, while we are willing to give him credit for this knowledge, we would advise him to find out the length in inches of such a brace and multiply it by three."

Occasionally we find a man who, as soon as any piece of work is proposed, begins to tell that he does not know how to do it. If such a man would keep quiet some one else would go ahead and do the work and he could learn something about it without having exposed his lack of knowledge. Moral—Learn all you can about your work, but do not be too quick to tell how much you do not know.

To those readers who have boys of their own to educate, we would say, "Let them learn some trade, preferably your own trade." They may be anxious to become a doctor, lawyer, or minister; and if so, let them study for this, but at the same time, or at some other time, have them learn some trade.

There is no telling what will befall a professional man to throw him out of his chosen work, and make him thankful that he can at least earn a living at some useful trade.

There are good reasons why a boy should learn his father's trade. He has an excellent chance to become proficient. He has the needed tools to work with. It calls forth pride on both the part of the father and son in doing good work.

When a man has a good collection of tools and books pertaining to some useful trade, surely it would be gratifying to him to see a son taking up the same line of work, even though he uses it merely as a stepping-stone to something higher.

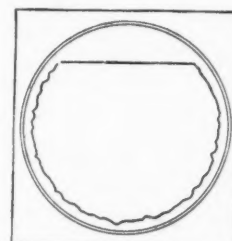
To the young man we would say, "Learn," and to learn, you must study—first, books, then actual work—or reverse this order if you choose. Then you should read the good trade papers and "think."

It sometimes is easier and quicker to use a 10 foot pole to get the length of a stick than to figure it out from some known data; but measuring now will not help you for the next time, while if you can figure it out, the knowledge may be useful in future work as well.



A Kink for the Painter

When using mixed paints that come put up in round pails, cut the thin cover in the shape shown in the sketch. The straight edge thus formed will make a place to remove the surplus paint from the brush, also will prevent the paint from running down the outside of the can.





An Attractive House

To the Editor:

Norwood, Minn.

I see that you publish pictures of a good many nice homes in every number, and while you have lots of members in this part of the country I thought I would send you a nice building which I have just finished. I think it would look good in your journal.

I built this house for Dr. C. T. Grivally, of Young America,

Can any of the concrete specialists suggest a way that I can finish this floor and give it a smooth, hard finish?

D. B. Cox.

To Heat and Ventilate a Mushroom Cellar

To the Editor:

Bradley, Ill.

I have a stone building 14 feet by 21 feet by 8 feet, stripped, lathed and plastered. I have six beds of manure 5 feet by



Minn. It has a full basement with four very large rooms, five rooms besides hall and bath room down stairs and three rooms up stairs. The interior finish is oak, filled, shellaced and varnished and rubbed to a dull finish. The exterior of the house is shingled with a "five dimension" shingle, stained with a yellowish creasote stain; the roof is dark green, trimmings white.

P. J. HEINISCH.

Resurfacing Cement Floor

To the Editor:

Kenosha, Wis.

Some time ago I put in a cement floor. After putting in the concrete, I put on the top dressing. Being too late to trowel the top dressing we let it go until the next day. When we came in the morning the finish had so set that it was impossible to trowel it. I took the neat cement and went over it, giving it a good one-quarter inch finish. At present it has started to peel and is in such condition that I do not know what to do with it.

2 feet square by 8 inches; no chimney and no space for stove. I am using a "perfection oil heater" to heat the room. It is for mushrooms. There is also a double door and a window (one of each).

Now what size cold air and what size warm air pipes shall I put into this room so I can maintain from 50 to 60 degrees of heat? Is one heater sufficient? I have been trying for 16 days and can only get 45 degrees. I would like an immediate reply and if you cannot tell me, do you know where I can get the information?

GEO. A. RICHARDSON.

Answer: I suppose the stone building you refer to stands up above ground. I would suggest that you bank it around with horse manure, put on a double door, box the window and fill in with manure. It would seem that an oil heater should raise the temperature in such a room to 55 degrees. I once made a failure of a mushroom cellar because the temperature was too low and we were not permitted to use artificial heat because it was under a valuable building and the insurance company would not stand for it. It is very

difficult to lay out a rule for the size of air ducts. You need sufficient ventilation to carry off the fumes from the oil burner; and, of course, you must supply the necessary air. About the only suggestion we can make at long distance is to put in pipes large enough with dampers or valves of some kind that you can close partially until you find out by experience how to regulate the ventilation. The government issues a bulletin, No. 85, on the principles of mushroom growing and mushroom spawn making, by B. M. Duggar, which will furnish you much valuable information.

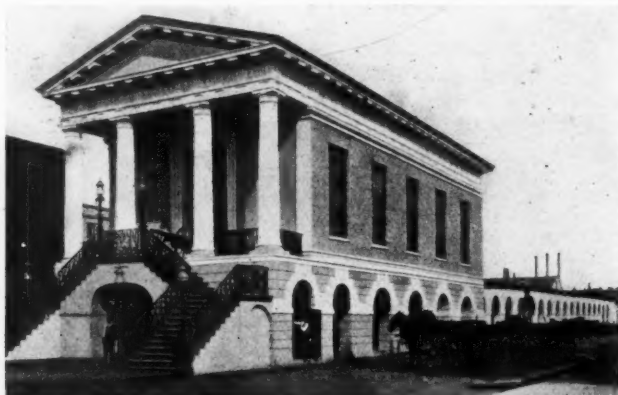
HERBERT SHEARER.

An Interesting Building

To the Editor:

Charleston, S. C.

You may be interested in the accompanying photograph, a picture of one of the historic buildings of the "South." In



former times it was the Slave Market, the place where thousands of imported slaves were sold. It is now used for the display and sale of produce and is known as the "Old Market."

M. B. HARRIS.

How to Lay Slate Roofing

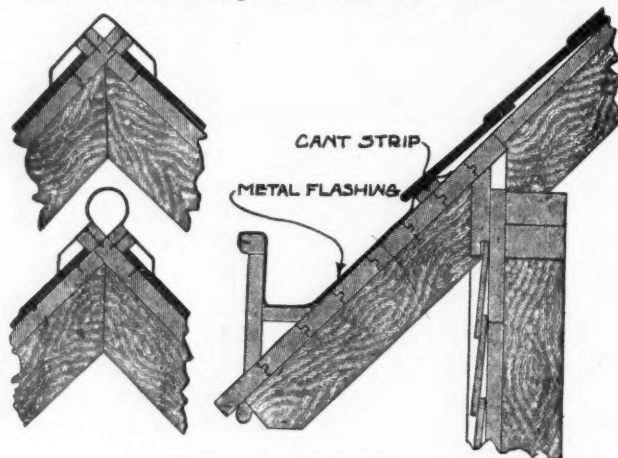
To the Editor:

Georgel, Va.

I have a number of buildings to roof with slate. As I have had no experience in this line will you kindly give me a few practical hints that would help a beginner? Any information will be appreciated.

W. E. PATTON.

Answer: The first point to remember is that slate roofs



Proper Construction at Ridge and Eaves

require about the same foundation as shingles. The better the foundation the better will be the roof. In beginning at the eaves a thin "cant" strip is put on just above the eaves; or, in case of a roof gutter, the strip is put about a foot above the gutter. This strip is usually about two inches wide and three-eighths of an inch thick nailed across the

than the other courses; or the usual size is turned and laid horizontally so the first two courses may be double the same as in shingles. The lower part of the slate should project about one and a half inches. The second course up should lap about three inches over the first or double course. When nearing the peak the lap may be varied a little to make the slate come out right.

Nailing is rather a particular job. The nails should not be driven down tight, but the heads must not project above the surface of the slate. Three-penny galvanized or tinned nails with flat heads are used for all sizes of slate up to twenty inches, and four-penny for slate larger than twenty inches. Punching the slate may be done by hand or by a machine made for the purpose. Machine punching usually is better, as the holes are more uniform and cleaner cut. When punching select the slate according to thickness and cull out the pieces with thin corners or other imperfection. Use the thick slate at the eaves and the thin ones higher up. Finish with a thick course at the peak. The imperfect ones work in around chimneys, gutters, etc., to good advantage.

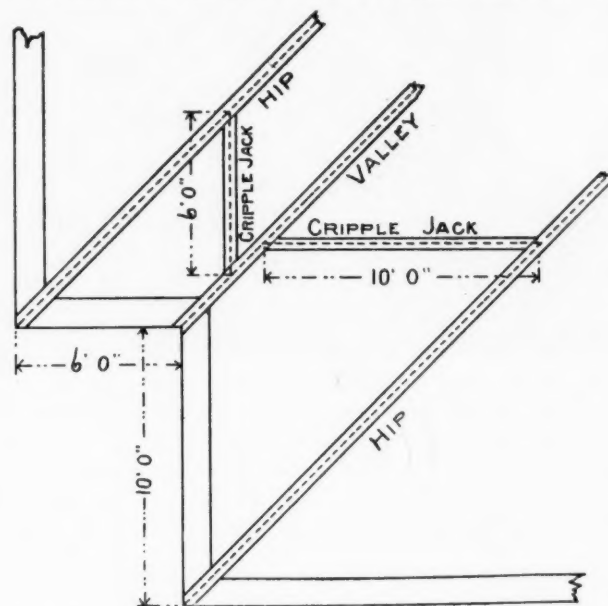
Only two tools are really required: a hammer and a stake. The hammer combines four tools in one; hammer for driving nails, claw for pulling nails, knife for cutting slate and a point for punching slate. The stake is in the form of a tee square, having the tongue sharpened to stick into the roof boards for a rest to cut and punch slate on. It is also used as a straight edge to mark slate when cutting and fitting around chimneys and other irregularities. Roofers also use a ripper to take out broken slate, a slate dresser which is convenient but not really necessary, and most slaters carry a pair of tinner's snips to cut metal flashings.

To Find the Length of Cripple Jacks

To the Editor:

Salem, Mass.

I would like to have you tell how to get the length of crip-



ple jacks. I can get the length of common rafters and hips but cannot get the length or cuts of cripples.

J. C. C.

Answer: The length and cuts for a cripple jack can be found just the same as for a jack resting against a hip. The cuts of the cripple are the same at both ends and are identical with that for the upper end of a jack resting against a hip. Where the roof is all of the same pitch, the runs of the hips and valley will rest parallel with each other, as will be seen in the accompanying sketch. Now here is a point that a great many do not catch onto, and that is,—the run of the cripple

jack is the same as the length of the plates that form the angle. Thus, in the illustration, the length of the plate on one side is 6 feet, and on the other it is 10 feet, which represent the respective runs of the jacks in question. However, it should be remembered that this measurement is from center to center of hip and valley; and it is therefore necessary to make a deduction in the run equal to the thickness of the hip, or valley; or the length of the cripple may be found for the full run, and then measure square back from the plumb cut the full thickness of the hip, which will be at the proper point for the plumb cut.

A. W. Woods.

Helping a Friend in Need

To the Editor:

Highland, Mich.

There have been many articles written describing different methods of roof framing in which the use of the steel square has been the foundation. In this article, I want to explain how I once laid out a pattern rafter without a square.

One morning last summer, while driving to my work, a

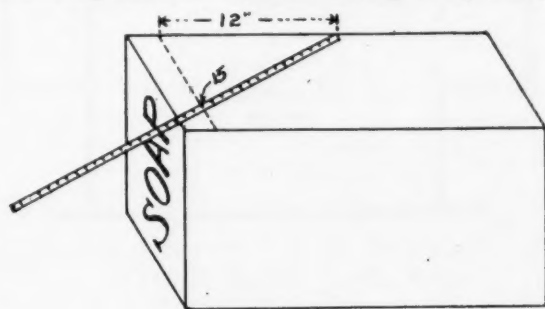
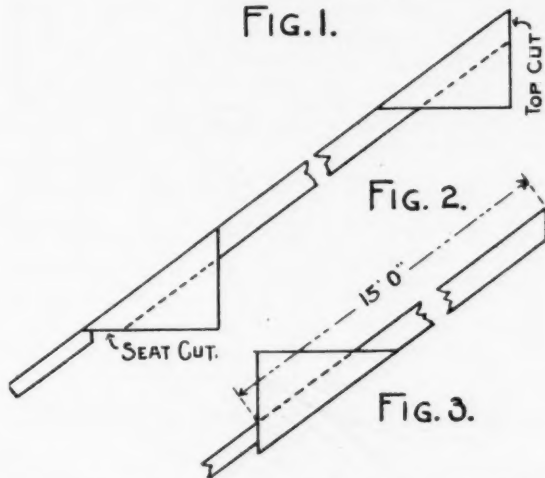


FIG. 1.



neighbor hailed me and asked me if I would stop and lay out a pattern rafter for a sheep shed he and his hired man were building. Of course I was glad to have the opportunity to accommodate a good neighbor, and stopped. Was informed that the building was 24 feet wide and material for rafters was 16 feet long. All very well. I selected a straight piece and laid it on some boxes that were being used for trestles and asked for a square. There was no such tool on the job! All they had in that line was a yard stick.

I was up against it for just a minute, when I noticed the smooth side of a soap box nearby. Taking the yard stick I asked what pitch was wanted, and was told to make it as steep as the length of the sticks would permit, after giving one foot projection to the cornice. This made it very simple, as that made the length of rafters just 15 feet. I made a mark across the side of the box about 2 inches from and parallel to the end for the rise line; then marking a point on the edge 12 inches from this for the run, I laid the rule across from that point, and intersecting the rise line at 15, Fig. 1. This formed a triangle giving the rise, run and pitch.

I next sawed out this piece (after proving it by the 9, 12 and 15, or 6, 8 and 10 method) and used it for getting the cut on rafter (Figs. 2 and 3). I marked off one rafter and left. Looking at my watch, found I had spent less than ten minutes, and was pleased to know that I had helped a friend in need.

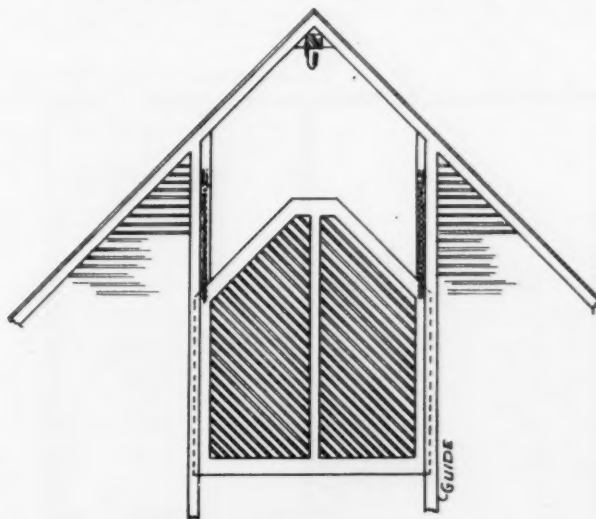
ALBERT GONNE.

Two Ways to Arrange Hay Mow Doors

To the Editor:

Cleveland, Ohio.

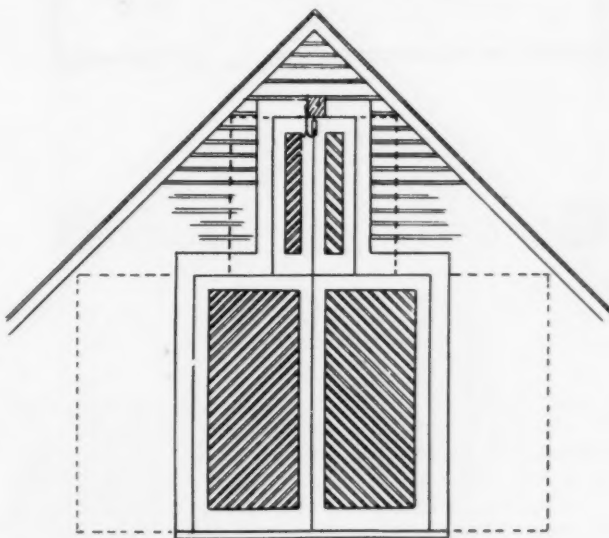
Please advise me the best way to hang hay mow doors. I have a barn with hay track high up in the gable, and I want



doors eight or ten feet wide, and want them to swing clear back. I thought perhaps you could advise me so as to make a neat job of it.

H. LANDPHARE.

Answer: For this, we submit two illustrations. The first one is for a single door hung with weights and run in grooved jambs on the outside of the building. With this kind of arrangement the door is made to slide up and down, and in this way can be made to slide close up to the comb.



The second is for double doors and small doors from these up to the carrier. With this arrangement the doors can be hung with butts and will swing clear of the cornice, but there should be a movable cross bar at the top of the big doors to give a solid bearing to shut against. The bar can be removed when putting in hay, thus leaving a clear space down to the larger opening, as it is not particularly necessary to have the full size opening run all of the way up to the carrier.

Roof and Piazza Design

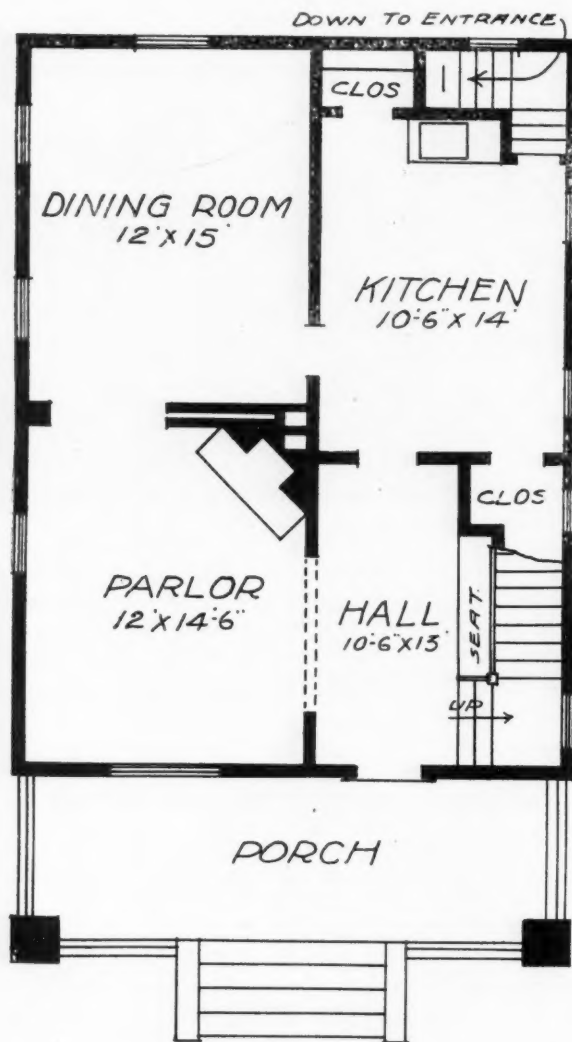
To the Editor:

Laingsburg, Mich.

I have built over fifty houses in this vicinity, have been contracting and building for over thirty years, and now for the fifth time I am going to build a home for myself. I have my foundation built, and plans of first floor, but would like a roof a little different than anything I ever have built. On another sheet I send sketch of first floor and description of house. I would appreciate it very much if you would suggest a roof and piazza that would be economical, plain and neat for a house to cost about \$2,500, prices based on Chicago prices for building.

WM. H. BENSON.

Answer: The sketch of the first floor, which is reproduced

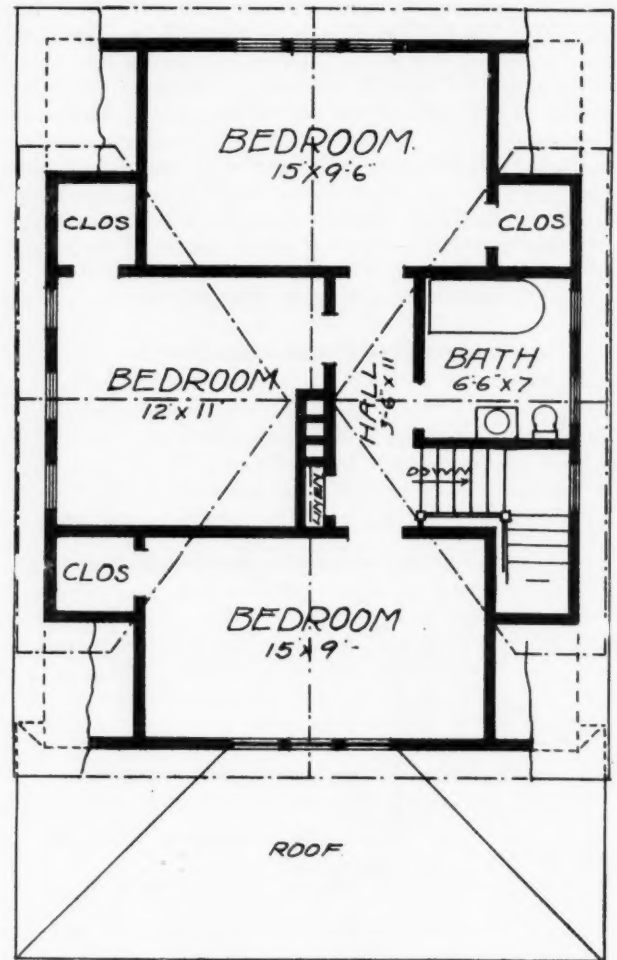


The First Floor Plan

herewith, shows a rectangular plan 24 feet frontage by 31 feet 6 inches depth; there are three good sized rooms and reception hall down stairs. From the description we note that a story-and-a-half house, having three bedrooms with closets upstairs, is desired, also that the front of the building site is well up from the street, the lot, sloping back, however, giving a seven foot foundation wall at the rear. A good large porch is desired.

We offer the accompanying design by way of suggestion for an attractive though economical porch and roof treatment. Allowance has been made for nine foot ceilings for first floor rooms and for eight foot ceilings for all rooms up stairs. Heating is to be by hot air furnace or hot water.

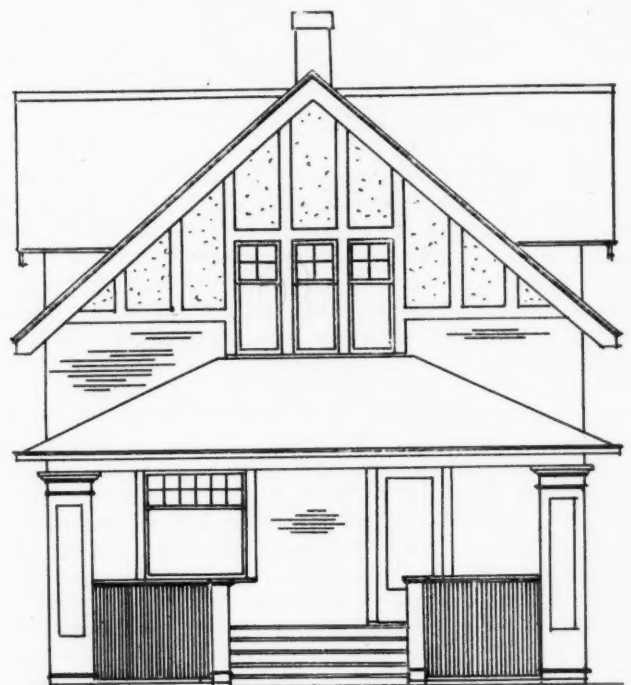
The arrangement of rooms is convenient; and the design is thoroughly practical. While it may not be entirely novel



Second Floor and Roof Suggested

in your vicinity, it is one that is always attractive and in good taste.

If any of our readers have other suggestions to offer Mr. Benson for the finishing of his house we shall be glad to present them in these columns.



Porch Design Suggested

How to Find the Cuts for Rafters

To the Editor:

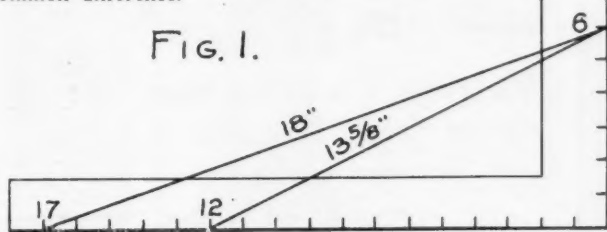
Hemet, Cal.

I have a question to ask. How do you find the cuts for hips, valleys and jacks when the common rafters are 6 to 12; 7 to 12; 8 to 12; 9 to 12; 10 to 12 and 12 to 12? Please give me a formula of how to find the different cuts. W. T. E.

Answer: We will answer this by answering the first example, 6 to 12. The formula given applies to all alike, whether it be a six inch or a fifteen inch rise to the foot. Fig. 1 will show why certain figures are used on the square to obtain the cuts. Of course, other figures can be used, but they must be in the proportions here given. Twelve on the tongue is used because it represents one foot, and 17 because it is the length of the diagonal of a foot square and represents the corresponding run of the hip or valley to one foot run of the common rafter. These figures are standard or fixed points for any pitch desired. Taking the 6 inch rise to the foot, the common rafter is $13\frac{5}{8}$ inches and the hip or valley 18 inches for a one foot run. Now, suppose we wish to find the length of the common rafter for a building 22 feet 6 inches wide. Since the run is one-half of this amount (11 feet 3 inches), all that is necessary is to place the square at 12 and 6 along the edge of the rafter eleven times (see Fig. 2); and as there are 3 inches more, lay off that amount from 12 along the tongue and check. Then slide the square along till the 12 rests at the check and mark along the blade, which will be the proper point for the plumb cut.

Proceed in like manner for the hip or valley, taking 17 and 6; but, at the last placing of the square, instead of measuring off 3 inches, take $4\frac{1}{4}$ inches, which is the length of the diagonal of a 3 inch square. This may be reckoned as follows: Since 3 inches is one-quarter of 12 inches, one-quarter of 17 inches equals $4\frac{1}{4}$ inches. Thus, the length of the rafters is obtained without any further measurement, and that, too, without knowing their actual length.

The jacks being a part of the common rafter, their lengths may be found in the same way. Or, if they are to set on 16 inch centers, place the square at 12 and 6, as for the common rafter, and mark along the tongue; then slide the square along till 16 rests at the edge of the rafter, and the length will be represented by that part of the rafter covered by the square, and represents the common difference.



However, if one is good in mathematics, it is often better to find the rafter lengths by multiplying the lengths for one foot by the run. Taking the above case: $11\frac{1}{4}$ times $13\frac{5}{8}$ inches equals 12 feet $9\frac{1}{4}$ inches, the length of the common rafter; $1\frac{1}{3}$ times $13\frac{5}{8}$ inches equals 1 foot 6 inches, the common difference of the jacks; and $11\frac{1}{4}$ times 18 inches equals 16 feet $10\frac{1}{2}$ inches, the length for the corresponding hip or valley.

The cuts on the square are as follows:

Twelve and 6, seat and plumb cut of the common and jack rafters.

Seventeen and 6, seat and plumb cut of the hip or valley.

Twelve on the tongue and $13\frac{5}{8}$ on the blade will give the side cut of the jack. They also give the face cut across the

roof boards to fit in the valley or over the hip, the blade giving the cut in the former and the tongue in the latter. The backing of the hip may also be found by taking 18 on the

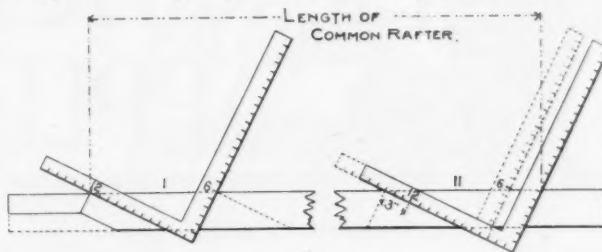


FIG. 2.

tongue and 8 on the blade and the tongue will give the required angle.

For an 8 inch rise, the lines from 12 and 17 (Fig. 1) would run to 8 on the blade, and their lengths would consequently be changed, but the formula remains the same.

A. W. WOODS.

How Do You Make Glue Molds?

To the Editor:

Cheraw, S. C.

I would like to ask through the valuable columns of your paper the proper way to make glue molds for making plaster casts. If some of the readers will kindly favor me with the information I will be grateful for the same.

T. J. SHERIDAN.

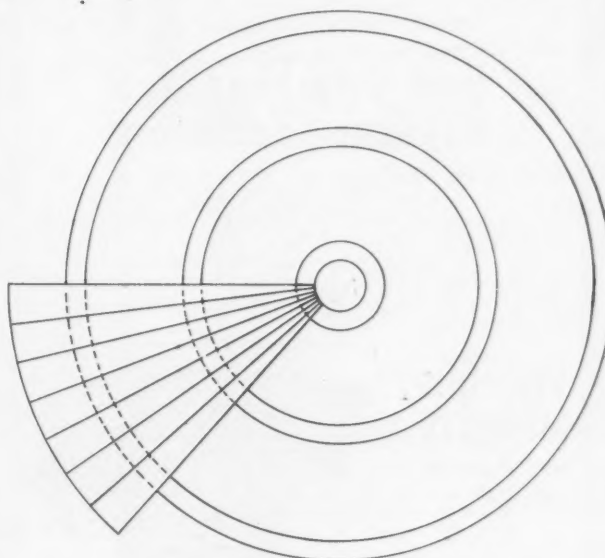
Silo Roof Construction

To the Editor:

Midway, Wis.

I am at the present time putting up stave silos and I would like to explain for the benefit of your readers how I construct the roof.

For brick or stone silos, I use three plates, as shown in the sketch, but for staves, I use only two, one at the middle and one at the top. For the lower plate, I simply nail a 1 by 4-inch piece around the outside of the staves even with the



SILo ROOF.

top and for the other plates I rip out circles from 2 by 10 inch stuff and spike two thicknesses together.

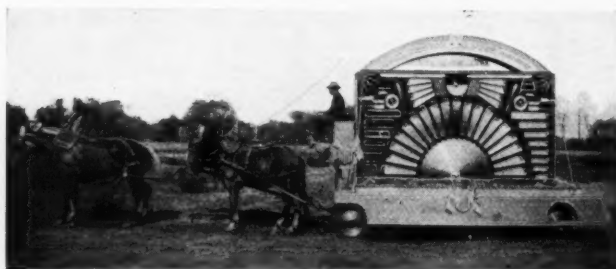
For roof boards, I use mostly 1 by 10 inch No. 2 pine and rip them as shown in the illustration. I have seen many ways of constructing silo roofs, but would recommend this way.

FRED BLACK.

PRACTICAL TRADE APPLIANCES

Unique Display

The accompanying photograph illustrates part of the spectacular display made by Henry Disston and Sons to take



part in the Industrial Parade on the Wednesday of Founders' Week, October 4 to 10, 1908, in Philadelphia. It is one of five such floats used to display the product of these great saw and tool manufacturers.

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RESIDENCES AND SMALL BUILDINGS

need comparatively as much ventilation as large constructions. Very frequently the ventilation of a residence is left to the cracks and crevices—which at best is most unsatisfactory and inadequate.

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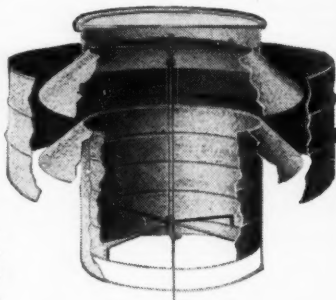
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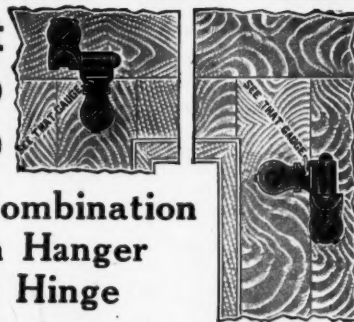


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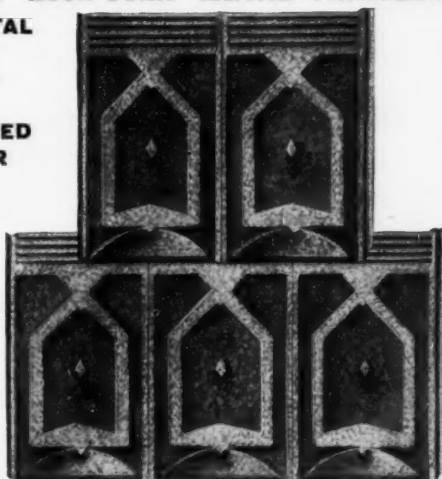
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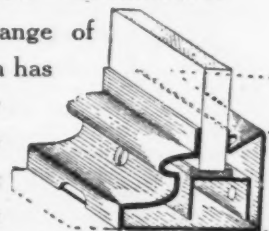
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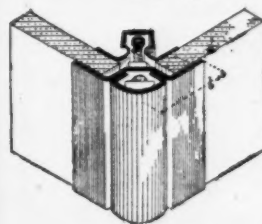


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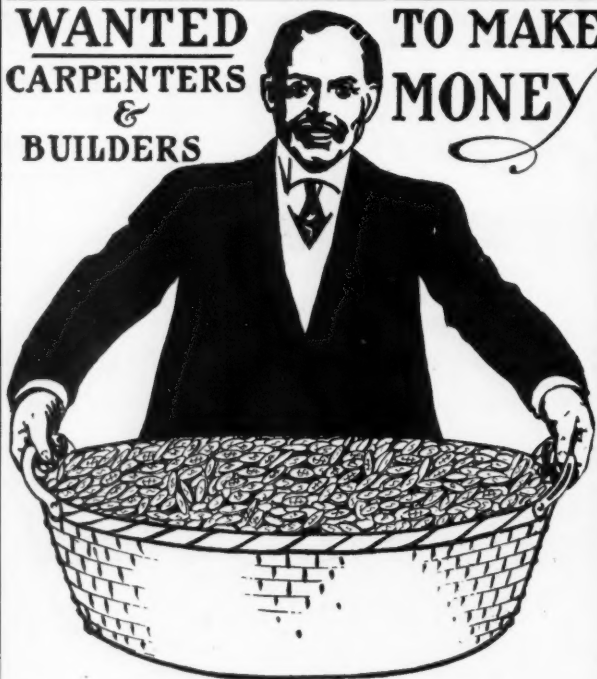
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

WANTED TO MAKE CARPENTERS & BUILDERS MONEY



Carpenters and Builders

We want you to take up the Slate Roofing Business this spring and handle our

SEA GREEN & PURPLE ROOFING SLATE

because it is a first class money-making proposition, offering big possibilities

Take your locality for instance—every year there is considerable new work, all requiring roofs. In addition, there are also simply hundreds of old, patched and worn-out roofs that **MUST** be replaced.

Now, we claim—and you know this to be true—that the average owner is tired of paying out his good money for short-lived roofing—high priced shingles that don't last—tin and metal that cause frequent and costly paint bills and these composition and "oids" roofings conceded to be of small value. And we further claim that the public are willing to pay and will pay a fair price for a roofing that actually gives good service. Now, take **OUR**

Sea Green and Purple Roofing Slate

here is a time tried roofing material that **ABSOLUTELY CAN'T WEAR OUT** (we personally know of slate roofs 75 years old as good as new). It can't rust, warp, crack, tear or decay. It affords spark and fire protection, reduces insurance rates, gives clean cistern water,

is suitable for any building, new or old

in fact, has every desirable quality.

When you offer customers such an **IDEAL** roofing material—at a reasonable, yet profitable price—is it not a dead certainty that you will secure plenty of contracts and that within a short time you will establish a profitable, growing Slate Roofing Business? One that can be carried in connection with your present line with no added trouble or expense.

Investigate our proposition. Take up Slate Roofing. Write to us at once for delivered prices on slate, free book of instruction, prices on the few simple tools required. **DON'T DELAY. WRITE TODAY.**

AMERICAN SEA GREEN SLATE CO.

Box 36, Granville, N. Y.

machine made for contractors and builders, planing mills, pattern and specialty shops. Small shops with limited room and power, find this general purpose machine indispensable once it finds an entrance into such establishments.

Large shops having a special machine for most every pur-



pose, need an emergency machine like this to assist "in the rush of business," hence this Variety wood worker is invaluable for general wood work, in which its range is almost limitless in capable hands.

The illustration shows the jointing, boring, routing and sawing attachments. Glue jointing, chamfering and planing out of wind up to 6 inches wide, straight or bevel ripping, right angle or miter crosscutting as well as boring, can be perfectly done on this machine with the usual fixtures accompanying it. At a small additional cost, the routing attachment with bits may be had, as can also dado heads, groover saws, beading, rabbeting and similar flat mold and rosette cutters, the tenon, panel raising and self-feed rip saw attachments shown.

Meet Us at the Show

Illustrated on another page in this issue will be seen the advertisement of the Cement Machinery Company, of Jackson, Mich. Scores of their mixers are now in use and it

will be to the interest of everyone interested in mixers to send for their "Systematic" mixer



catalogue. This company not only manufactures mixers, but are also one of the largest manufacturers of concrete block machines, brick machines, sill cap and step molds in the U. S. A. In addition to all these they have recently started the manufacture of a drain tile mold, which is

claimed to be the handiest rig for producing various diameters of tile 12 inches long. The greatest advantage of their tile mold has come from the fact that it requires no extra pallets or casings to operate it, the mechanism being so arranged that the same pallet and casing can be used indefinitely. With this mold a thousand 8 inch drain tile can be made at an approximate cost of \$40.00, including the molds, thereby saving at least 100 per cent over the clay tile propo-

ARE YOU DRAWING *Good Plans AND Good Money?*

WITHOUT DOUBT many readers have in the past wished to be successful, first-class Draftsmen and Building Designers, and probably often looked for a long time at plans and drawings, trying very hard to figure out certain lines, or had experienced an intense desire to be able to do the best drawing in best



F. V. DOBE

up-to-date manner; and many men in most any kind of business, especially in Architectural lines, have often felt greatly embarrassed because unable to read even a simple sketch or unable to make any kind of businesslike drawing.

No Carpenter is first-class and competent unless he is an A-1 Draftsman in addition. Without this knowledge he can never rise any higher and will remain only a Carpenter paid by the hour or day.

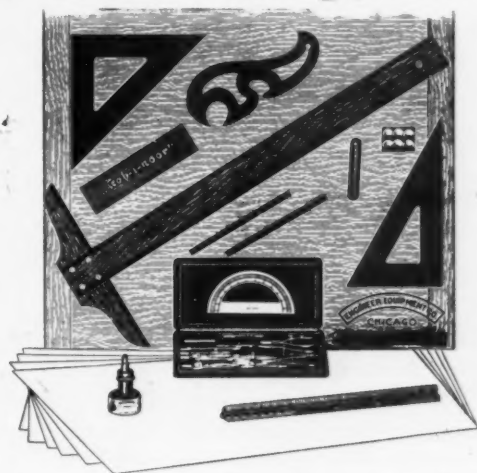
To become a successful Draftsman it is necessary, first of all, to receive the most practical and personal training. Not a lot of school or book knowledge, but practical Drafting room work.

Mr. F. V. Dobe, Chief Draftsman of the Engineer's Equipment Company (inc.), Chicago, has for many years made a practice of giving personal and individual Drafting instruction in complete Architectural Drawing and Building design; and is prepared to accept a few more personal students, young or old.

His instruction is given by mail, but

must not be compared with ordinary "for all alike" correspondence school lessons, as all the work is laid out personally by himself and prepared especially for your individual requirements and advancement. He treats each student according to the student's ability; and with his individual practical method, *which consists of actual Architects' work*, thereby giving the student the necessary required practical experience, he is able to qualify any experienced or absolutely inexperienced intelligent man.

He does not give or sell diplomas, but insists on your work being the only practical and *necessary evidence* of your ability, and able to do the talking for you. He guarantees by contract to qualify you in a few months by his practical instruction to be able to hold a first-class Draftsman's position. Instructions are given *until competent in every respect*. Mr. Dobe furnishes to his students, as a premium for the best practical drawing, and with which to make the best drawings, one of the



finest complete Drawing Outfits, including a full set of German Silver Instruments, worth \$13.85, free this month.

His "Successful Draftmanship" book, size 6 by 9, is sent free with full particulars to any one interested, by writing to F. V. DOBE, Chief Draftsman.

Engineers Equipment Co., Chicago.

sition, on the first 1,000. Subsequent tile at a decreased cost.

The United States Government, as well as several foreign ones, have adopted machines manufactured, and if they are good enough for Uncle Sam they ought to be good enough for you.

A card addressed to the Cement Machinery Company, of Jackson, Mich., will bring all desired information.

Machinery for Contractors and Builders

The Chicago Machinery Exchange have introduced a new idea, which enables carpenters and builders to obtain more business and, incidentally, more profit. Existing conditions demand the elimination of the middleman. This is especially true in the building trades where the contractor who is independent, having his own machinery, can underbid the man who is at the mercy of local mills and can rush a contract through to completion in much shorter time than the contractor not so equipped.

As the leading house of its kind in America, the Chicago Machinery Exchange offers a wonderful selection of machin-

ter D. Whitney & Son, Hermance Machine Company, McDonough Manufacturing Company, C. O. & A. D. Porter and Greaves, and Klusman & Co.

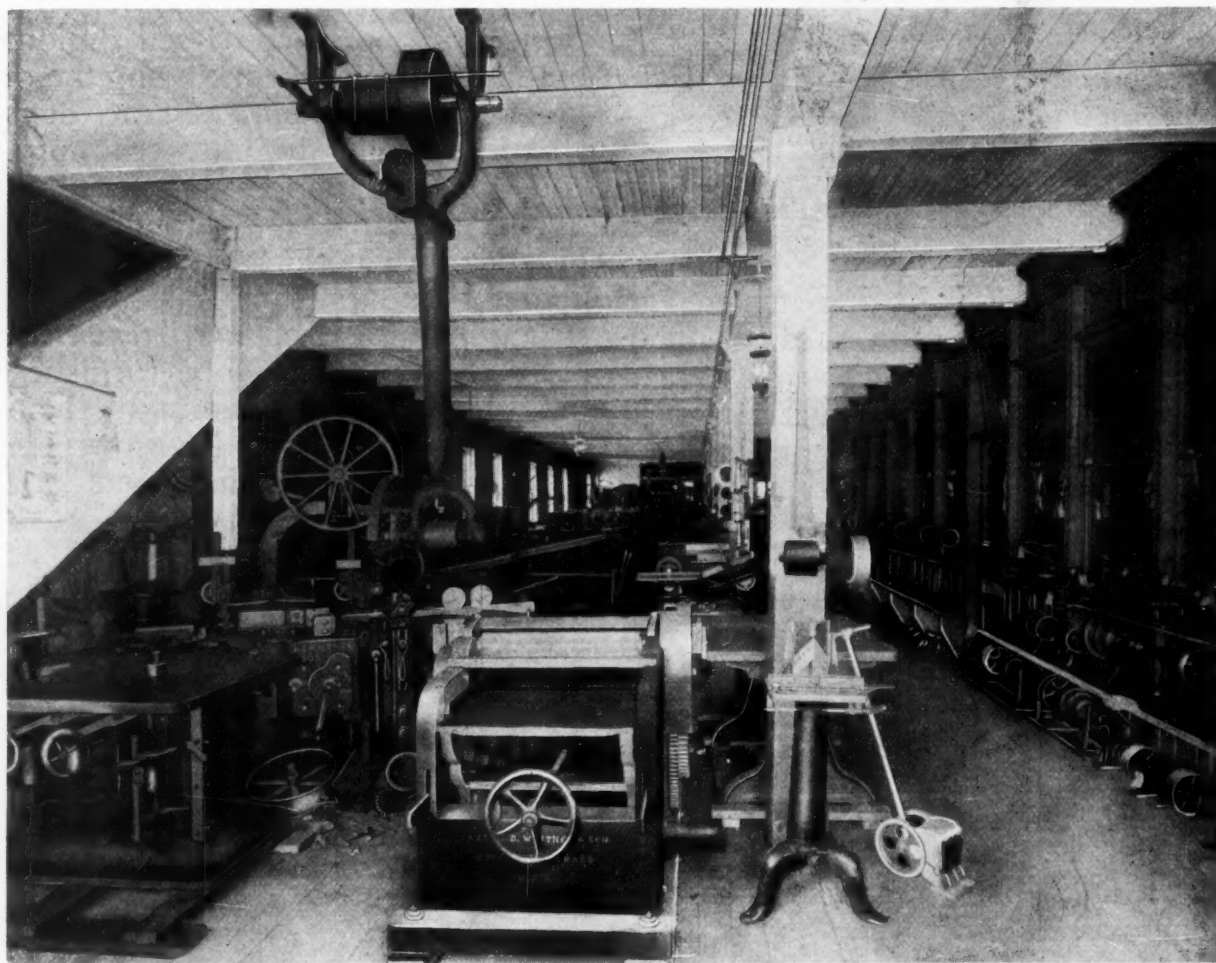
All machinery carried by the Chicago Machinery Exchange is of the special construction necessary to secure fine finished surfaces and to reduce sandpapering to the minimum.

The company issue a monthly list of new and rebuilt machines. Interested contractors may receive it regularly by sending to 13-15 South Canal street, Chicago. Other important details are to be found in the company's advertisement on another page.

Success or Failure

The carpenter making the most shavings usually gets the smallest pay, and the contractor doing the most sweating, usually is the lowest bidder and loser.

There is a reason for this carpenter to be out of a job, and for the sweating and swearing contractor to be out of money. It is a fact that more contractors go broke than survive on



ery particularly suitable for the contractor's use. There are always five hundred machines carried in stock at their great warerooms. It is surprising what a small investment is necessary to make contractors independent of local mills and their attendant delays and high charges. From a stock of new and rebuilt machines it is comparatively easy to select just what machines your business requires for a very reasonable sum.

The Chicago Machinery Exchange, of which Mr. Woldemar Giertson is president, make a specialty of new and rebuilt machinery for woodworking purposes, and are in a unique position to supply the wants of contractors and builders. Among the well-known manufacturers represented are: Bax-

ter the first job, and more money is lost than made by using the old foggy guess rule, or thumb measure.

At this age of competition only the *best* will survive; the most successful man, whether carpenter or contractor, is only the best educated, trained and experienced man.

A carpenter or contractor that is not a first class draftsman is soon a "dead one," and passed by as not up-to-date or competent to handle the best work with the most money in it. What's the use being a "dead one" while being alive?

Mr. F. V. Dobe, of the Engineers' Equipment Company, Chicago, Ill., who has been at the head of a large business in this field for nearly twenty years, is now giving personally a practical drafting room instruction, of an exceptionally high

LUMBER AND BUILDING MATERIAL

Special Offer To Contractors And Builders

Buy From Us At **WRECKING PRICES** **CHICAGO HOUSE WRECKING CO.** An Opportunity To Save **25 TO 50 PER CENT**

IMPORTANT! Send Us Your Lumber and Building List for Our Estimate

Brand New Lumber for Sale

The Chicago House Wrecking Company is the largest concern on earth devoted to the sale of Building Material and General Supplies direct to the Carpenter and the Contractor. By dealing with us you are purchasing at first hands. This company was organized in 1893 for the purpose of dismantling the Columbian Exposition at Chicago. Since that time we have successfully purchased and dismantled every Exposition of any note. We have from this one source alone sold over One Hundred and Sixty-five Million feet of lumber. It was from this natural cause that we engaged in the lumber business. We found that it was impossible for us to successfully take care of the thousands of our customers and supply them with lumber from this one source. As a consequence we purchased outright various saw mills and also bought at forced sales millions of feet of high grade, brand new lumber. In addition we have for sale a complete stock of mill work, plumbing material, heating apparatus, structural iron, hardware and everything that enters into the construction of a building of any kind or for any purpose. Our fame is National. No other firm can make the sweeping statement that we do: That you can come into our establishment and buy everything needed both to build the building and completely equip it. We invite inspection of our stock.

Fifty Million Feet in Stock

At the present time, we have for quick sale over fifty million feet of brand new, first class, high grade lumber of every kind. We can furnish you lumber for building houses, churches, barns, stores and factories. And it is the best grade of lumber. Just as good lumber as is to be found anywhere on earth. We are making special prices to those who buy at once. Never in years has lumber been offered at such prices as we offer it. The best proof of this is to allow us to make a bid on your estimates. Just make a complete list of everything you need for any particular job you may have on hand and it will surprise you what we can do in the way of prices. Nothing like it was ever heard of. The best and most convincing proof of our prices is the fact that during the past sixty days while others have been bawling poor business, we have steadily increased and have sold vast quantities of lumber and building material. Much more in fact than we have ever sold in any corresponding period in the history of this business. You will save in dealing with us. Our broad and binding guarantee protects you absolutely. You will get from us just the material that you purchase. It stands to reason that our goods must be right. How else could our business have attained its wonderful commercial proportions? All we ask is an opportunity to convince you. Or, better yet, come on to Chicago, visit our yards, see our goods. We will show you it is all that we represent. Then and there we will make you a price so low that it is bound to secure your business. You can't overlook such a chance as we offer. It is the opportunity of a life time. You will never again be able to purchase lumber and building material at such low prices as we offer today. Write for particulars.

Satisfaction Guaranteed.

We guarantee absolute satisfaction. We mean every word of that. We want your business only on a square business-like basis. We will deal honestly and fairly with you. If you buy any material not fully up to our description, we will either refund the purchase price or exchange it for correct material. This company has a capital stock and surplus of over One Million Dollars. We refer you to any Bank or Banker anywhere. Write to any commercial agency or ask us for names of people who have bought their lumber from us recently and we will send you copies of hundreds of letters received by us daily. Our best advertisement is the vast number of satisfied customers. **Write Today For Our Low Lumber Prices** Ask us to send you our latest lumber price list. It will be sent you so clearly and plainly that you can tell at a glance just what our quotations are. The grades are clearly defined. No attempt to humbug you on quality. We want to furnish you just what you buy. We want you to be able to say you "bought your lumber and building material from us and get value for your investment." That's the way we built up this business. That's the way we intend to continue to build. We require your patronage and good will. Out-line your needs and we will make you a reply so convincing and clear that you can't help but give us the business.

Everything Used In Building Sold At A Big Reduction

BARGAINS IN DOORS

5000 4-panel Doors 1-3-8 in. thick, size 2 ft. 6 in. x 6 ft. 6 in. 95c each. Size 2 ft. 8 in. x 6 ft. 8 in. \$1.05 each. We carry a complete stock of brand new doors of all sizes and in every specification. Handsome high grade front and vestibule doors, strictly "A" quality and the best of their respective kind. They are set with bevel plate glass, or, we can furnish them glazed with fancy lace design, double strength glass. They range in price from \$3.75 to \$20.00. High grade Front Doors, brand new, strictly "A" quality White Pine, glazed with sand blast glass size 2 ft. 6 in. x 6 ft. 6 in. \$3.15. Other sizes at proportionate prices. California Redwood Sash Doors strictly first class glazed with clear glass. 2 ft. 6 in. x 6 ft. 6 in. \$2.50. 2 ft. 8 in. x 6 ft. 6 in. \$2.60. Sash Doors for store fronts strictly "A" quality White Pine, 1-3-4 in. thick, glazed, size 5 ft. x 7 ft. with double strength glass \$9.00. All sizes in stock up to 6 ft. x 8 ft. Brand new 5-cross panel O. G. Doors with panels raised both sides, size 2 ft. 6 in. x 6 ft. 6 in. \$2.07. Size 3 ft. x 7 ft. 6 in. \$3.08. A complete stock of all sizes of White Pine, 1-3-4 in. thick, size 2 ft. x 4 ft. \$1.22. 10,000 Used Doors from various wrecking operations. In this lot we have doors taken from small cottages and buildings ranging from 2 ft. x 6 ft. up to 4 ft. x 8 ft. in good condition at 40c. Also fancy glazed Front Doors for residences ranging in various sizes at \$1.50 and up. One lot of large barn doors used at the St. Louis Exposition. Heavy design, strongly built, each \$2.00. Write at once for full particulars.

HIGH GRADE NEW MILL WORK

We are in better shape to quote low prices than any other concern on earth. We do not buy our goods in the regular way. We purchase at Sheriffs' Sales, Receivers' Sales and Manufacturers' Sales. We can furnish you mill work of every kind and character. We can furnish everything needed in mill work, both regular and special. Send us memorandum of your requirements. Let us make you an estimate. Note our low quotations: Colonial Porch Columns strictly No. 1 Poplar, trimmed, size 6 in. x 6 in., 4 ft. long at \$1.25; 8 in. x 8 in., 4 ft. long at \$1.45; 6 in. x 6 in., 8 ft. long at \$1.70; 8 in. x 8 in., 10 ft. long at \$2.70. Fancy Porch Columns sizes, 4 in. x 4 in., 8 ft. long at 60c; 5 in. x 5 in., 9 ft. long at \$1.15; 6 in. x 6 in., 10 ft. long at \$1.80. Fancy Porch Newels 4 in. x 4 in., 8 ft. long at 55c. Stair Newels at \$3.15 and up. Angle Newels at \$1.90. Fancy Stair Balusters at 50c. Porch Balusters at 50c. Corner Beads at 10c. Base Angles per 100 ft., \$1.90. Porch Spindles at 5c. Porch Brackets at 7c. Fancy Face Brackets at 85c. Adjustable Sable Ornaments at \$1.25. Corner Blocks 2 1-4 c. Head Blocks at 1-2 c. Base Blocks at 1-4 c. Top Rail, per 100 ft., \$3.90. Bottom Rail per 100 ft., \$3.90. Quarter Round per 100 ft., 30c. In fact we can furnish at exceedingly low prices everything you can possibly require in mill work. Get our prices on Flooring, Sillings, Ceiling, etc.

BARGAINS IN WINDOWS

5000 Windows from various wrecking operations at prices ranging from 20c up. In this lot are a number of windows that are very fancy that will be sold at half the price of new ones. Fancy Front Windows brand new, high grade 1-3/4 in. check rail, they are up-to-date in design, bottom sash glazed with double strength clear glass, top sash with fancy ornamentations, size 3 ft. 8 in. x 5 ft. 2 in. \$4.90. 4 ft. x 5 ft. 10 in. \$6.35. Cottage Front Windows size 3 ft. 8 in. x 4 ft. 2 in., \$3.52. 4 ft. x 5 ft. 2 in., \$4.20. 4 ft. 6 in. x 6 ft. 2 in., \$6.60. Two light check rail Windows size 1 ft. 8 1/2 in. x 3 ft. 2 in., 63c. 1 ft. 11 1/2 in. x 4 ft. 6 in., 74c. 2 ft. 1-3/4 in. x 3 ft. 10 in., 81c. 2 ft. 21-5/8 in. x 4 ft. 10 in., 95c. Four light check rail Windows size 2 ft. 1 in. x 3 ft. 10 in., 70c. 2 ft. 5 in. x 4 ft. 6 in., 95c. Eight light check rail Windows size 2 ft. x 4 ft. 6 in., 77c. Collar Sash two lights, size 2 ft. 1 in. x 16 in. 38c. 2 ft. 9 in. x 20 in. 62c. 500 Storm Sash, first class, two light brand new at 74c. 255 Fancy Windows from the St. Louis Exposition, each 60c. 1000 second-hand Barn Sash, each 52c. 5000 Used Sash from the St. Louis Exposition glazed with 1-3/4 in. ribbed factory glass in all sizes which we will sell at per sq. ft. 6c. All kinds of Window Glass, Plate Glass, Ribbed Sky-light Glass and everything required in Window Glass and Sash.

DON'T BUY YOUR BUILDING MATERIAL UNTIL YOU WRITE FOR OUR ESTIMATE

Rubberized Galvo Roofing

\$1.25 Per 108 Square Feet.
The greatest Roofing value on earth. No higher grade manufactured. Unexcelled as to quality, wear and economy. Easy to put on. Requires no previous experience. Can be put on over shingles without removing them. Does not require a coating after it is on the roof. Weather-proof and fire-proof. Contains no coal tar, residuum or injurious compositions. This roofing is bought direct from manufacturers and is usually sold at double our price. It is guaranteed to give lasting service. Rubberized Galvo Roofing is slate color, tough, leather-like material made of a combination of wool felt and highest grade of natural, pure asphalt. Makes buildings warmer in winter and cooler in summer. Not affected by acids or gases. Has rubbery surface and on this account we call it Rubberized Galvo Roofing. It toughens and hardens with age. We furnish with each order sufficient cement to make the laps and large head nails to put it on with. It is appropriate for any kind of building. 1 ply per sq., \$1.25. 2 ply per sq., \$1.40. 3 ply per sq., \$1.75. These prices are per sq. of 108 sq. ft., and are F. O. B. Cars, Chicago. Also have in stock 1000 sq. of pure asphalt rock surfaced roofing bought by us at manufacturers' sale. Put up two to five lengths to a roll and each roll contains 108 sq. ft. Price per 108 sq. ft. including nails and caps, \$1.60. Red, Rosinized Building Paper per roll 500 sq. ft. 45c. Slaters Roofing Felt, per roll of 500 sq. ft. 75c. Write for free samples.

PLUMBING AND HEATING

\$1.25 for a White Enamelled Kitchen Sink. 3,000 handsome cast iron, flat rim, white porcelain enameled, brand new kitchen sinks 16 in. wide and 24 in. long, with nickel-plated strainer and collar for connection, all ready to install. Kitchen sinks with backs, made in one piece at prices ranging from \$7 to \$16.
Steam and Hot Water Heating Apparatus. We guarantee to save you from 30 to 50 per cent on heating jobs of every kind. Send us your blue prints and specifications for our estimate. Our plants are of the most moderate construction. Write for anything.

White Enamelled Bath Tub

\$3.00 buys a White Enamelled Bath Tub. 600 "New Style" bath tubs, finest galvanized steel with the enamel baked on the inside, nicely finished on the outside, heavy wood rim, 5 ft. long. Bath Room Outfits \$25. With steel enameled tub, vitreous earthen closet bowl, polished, hardwood seat and tank, complete with nickel trimmings ready to install. Other complete outfits from \$35.00 to \$150.00.
Plumbing Material of all kinds at prices that do not represent cost of production. We buy at Sheriffs' and Receivers' Sales only; that's why we can undersell all. Send today for our low estimates on plumbing material.

FREE 500-PAGE CATALOG NO. 742

We urge you to write at once for this bargain book. It is just out and ready to be sent on request. It contains a full record of our wonderful stock of Building Bargains. It also shows what we have on hand from our mammoth wrecking operations. It contains a record of thousands of bargains secured by us at Sheriffs' and Receivers' sales. It is a book that must be in your hands if you want to be posted. It also contains a complete account of our purchases of Household Goods from Sheriffs' and Receivers' Sales. Cut out the Coupon in the corner of this advertisement and mail it to us and we will immediately send you this book.
CHICAGO HOUSE WRECKING CO.
35th and Iron Sts. Chicago, Ill.

OUR FREE PUBLICATIONS

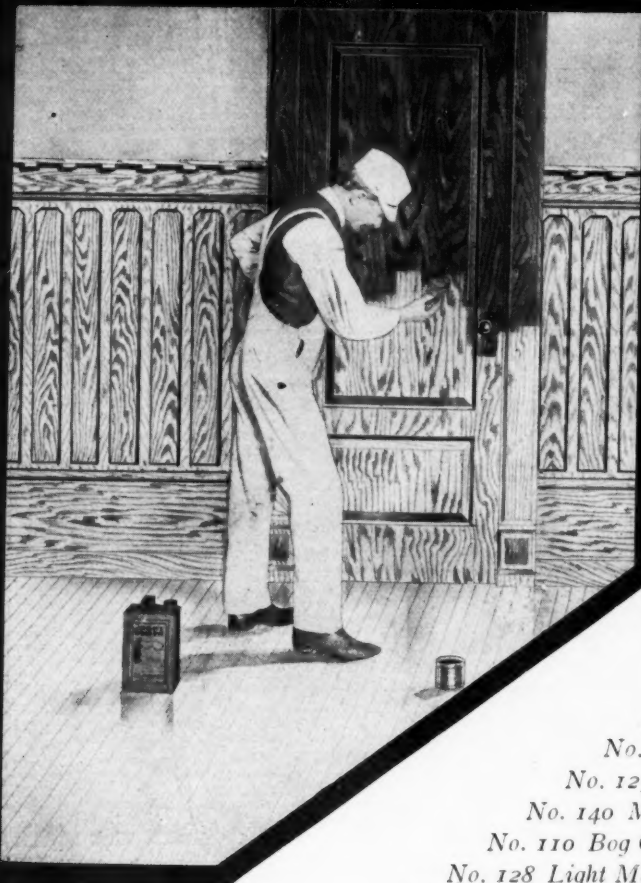
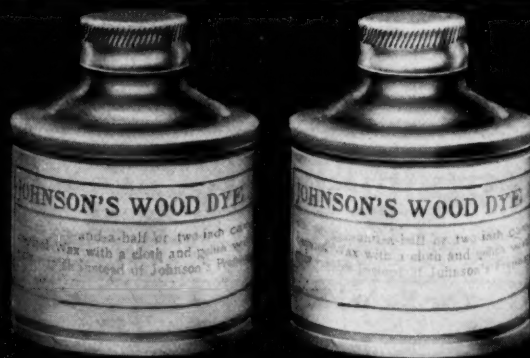
We publish regularly a pamphlet **Building News**, devoted entirely to building material. It contains some 64 pages of sound information bearing strictly on items of interest to the Contractor and the Builder. Quotes our low prices on lumber and all kinds of mill work. Acquaints you with the various bargains we are constantly purchasing. If you want it ask us to put your name on our mailing list.
Book of Plans. We issue a Catalog containing Bungalows, Cottages and Barns. We can furnish you a proposition to supply complete all the material needed for the construction of any one of these plans and in addition we will supply blueprints and complete specifications. It is valuable and will be sent free.

FREE CATALOG COUPON

Fill Out, Cut Out, And Mail.

Name
Town.....
County..... State.....
Shall we send 500-Page Catalog.....
Do you want our Plan book.....
What items in this ad most interest you?
I am a reader of American Carpenter and Builder
Address Chicago House Wrecking Co.

**Try
FREE
These 2 Cans**



Johnson's Wood Dye

is a dye, pure and simple. It penetrates the wood, coloring it so that if the finish is scratched or marred, the natural color of the wood is not disclosed. It brings out the natural beauty of the wood, does not raise the grain, and is easily applied.

Johnson's Wood Dye
comes in 15 Standard Shades:

- | | |
|------------------------|-----------------------------|
| No. 126 Light Oak | No. 130 Weathered Oak |
| No. 123 Dark Oak | No. 131 Brown Weathered Oak |
| No. 125 Mission Oak | No. 132 Green Weathered Oak |
| No. 140 Manilla Oak | No. 121 Moss Green |
| No. 110 Bog Green | No. 122 Forest Green |
| No. 128 Light Mahogany | No. 172 Flemish Oak |
| No. 129 Dark Mahogany | No. 178 Brown Flemish Oak |
| | No. 180 Silver Gray |

Any combination may be obtained by mixing two or more shades. To lighten, add wood alcohol. To make shade darker, add Flemish Oak No. 172.

Half-gallons, \$1.50; quarts, 85c.; pints, 50c.; half-pints, 30c.

Johnson's Electric Solvo is a perfect remover of old finish from wood, metal and glass.

It quickly softens the old finish so that it can be easily removed with a putty knife. It will not harm or raise the grain of any wood. Try it.

Gallon cans, \$2.50; quart cans, 75c.; pint cans, 40c.

S. C. JOHNSON & SON, Racine, Wis.

"THE WOOD FINISHING AUTHORITIES"

Johnson's Wood Dye

Read
FREE
offer
below

For the Artistic Coloring of All Wood"

Let us send you **FREE** prepaid, two cans of Johnson's Wood Dye. We want you to try this preparation at our expense because we believe you will find it the best preparation of its kind on the market. You, as a progressive, up-to-date painter, are just as anxious of using the best wood finishing preparations as we are to have you use Johnson's Wood Dye. So don't miss this opportunity—send at once.

Do you want sample panels of Southern Pine and Oak finished in Johnson's Wood Dye and Johnson's Prepared Wax? If so, write on coupon below. [If so, send 10 cents (stamps or coin) and coupon below.]

Johnson's Crack Filler **A non-shrinking, adhesive compound for filling cracks.**

Used and recommended by the best painters everywhere. It is the most economical and reliable crack filler made.

1 and 2-lb. cans, per lb. 25 cents. 5-lb. cans, per lb. 20 cents.

Special FREE Offer

Send us coupon in lower right hand corner of this advertisement properly filled out and we will forward you prepaid, two cans of Johnson's Wood Dye, any shades as specified, and include copy of our six-color 48-page book,

"The Proper Treatment for Floors, Woodwork and Furniture"

This book is full of valuable information for painters. Don't fail to write at once, and remember, if you want finished panels of wood, to say so on coupon.

This is the Most Liberal Offer We Ever Made

Be sure to send your paint dealer's name and write today

S. C. JOHNSON & SON
Racine, Wis.

"THE WOOD FINISHING AUTHORITIES"

**ACB-1
FREE
COUPON**

S. C. Johnson
& Son,
Racine Wis.
Gentlemen:—My
paint dealer's name
is

His address is

for which please send me FREE
prepaid, two cans of Johnson's
Wood Dye,
shades, and copy of your 48-page
book, "The Proper Treatment for
Floors, Woodwork and Furniture."

Name.....

Town and State.....

grade kind and quality; not the kind of "hash" furnished by some schools that teach from printed plates for all alike, but special individual instruction applying to the requirements of each man in his particular line. His instruction is given by mail, and the work can be done at leisure at home. His announcement appears on another page and should be carefully read by any ambitious man who is anxious to be something better than the average.

Importance of Sheet Metal in Building Construction

With the increasing cost of materials formerly employed, with the more rigorous exactions of the insurance authorities, and with the general willingness to adopt the promising improvements of these fast moving times, sheet metal has gained

same building after application of the Edwards patent rock face brick and stone siding, galvanized cornice and pediments, window caps, etc., making a handsome, durable and fireproof building at a comparatively small cost.

The Edwards patent rock face brick and stone siding is manufactured from Bessemer or open hearth steel, furnished painted or galvanized, imitating rock face stone and brick to perfection. Insurance writers give this siding the same rate as brick or stone.

On a building, the counterpart of a finely finished rock face stone or brick, it makes the most attractive and handsome sheet metal covering so far produced or offered the building trade. It is unquestionably an elegant facing for store and factory buildings and cannot help but take the place of the old galvanized iron fronts; because it is cheaper, makes a handsomer appearance and is more easily applied.

Architects, builders and contractors will readily see the advantage of using these patterns for siding purposes on dwellings, school houses, business blocks, court houses, factories, opera houses, auditoriums, etc., in preference to the old style corrugated, beaded and other metal sidings.

If you have an old building that does not look well and would like to improve its appearance at a small cost, send the dimensions of your build-

ing to The Edwards Manufacturing Company, "The Sheet Metal Folks," main offices and factory, 401 to 417 Eggleston avenue, Cincinnati, Ohio. They will prepare a suggestive drawing showing how your building will look after the sheet metal covering is applied, and will forward same, together with our estimate covering cost of material delivered f. o. b. cars, New York.



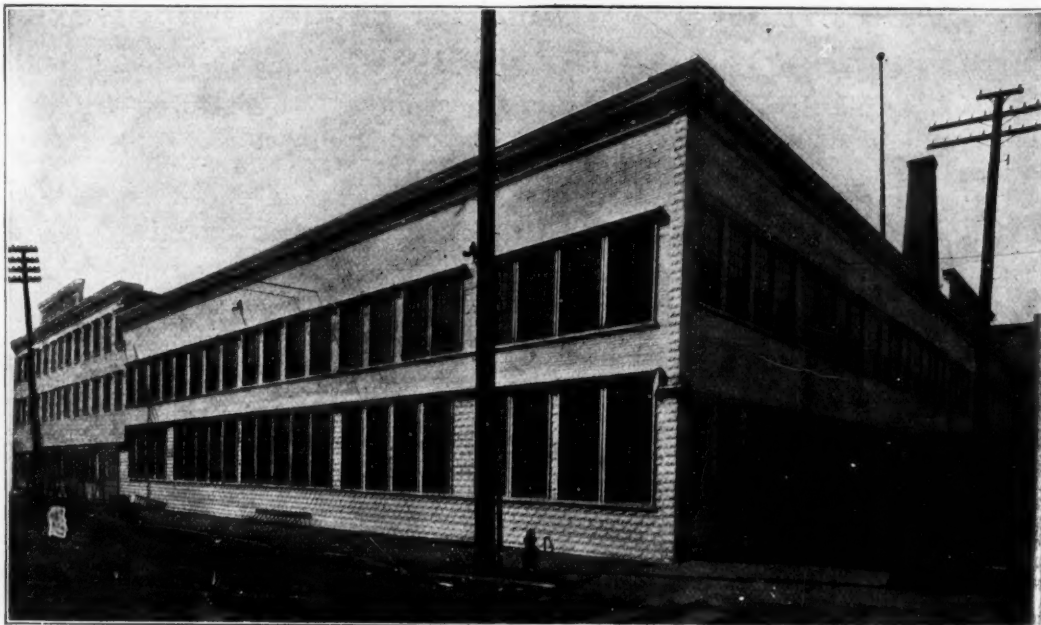
a prominence in building and house equipment that is perhaps hardly realized.

The present extensive adoption of sheet metal has been a gradual one, the interesting point being the widely different purposes and the common occurrence in our daily life of different metals in sheet form.

The fire resisting qualities of metal coverings have also had considerable to do with the development of the building sheet metal business.

A notable example of the architectural effect produced by the use of sheet metal in building construction is shown in the accompanying illustrations, taken from photographs of the plant of the American Tool Works Company, Eggleston avenue, 6th and Culvert streets, Cincinnati, Ohio.

Fig. 1. The old plant before application of sheet metal covering. Fig. 2,



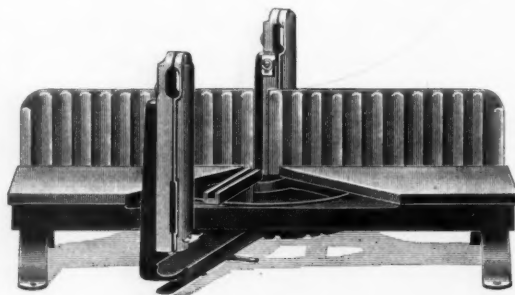
WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

This company is recognized universally as the largest manufacturers of sheet metal building material in the world, their products comprising metal ceilings, metal shingles, metal Spanish tile, metal roofing and siding, all styles, painted or galvanized, cornices, skylights, ventilators, eaves trough and conductor pipe, elbows and shoes, pressed steel boats, metal fire-proof window frames and sash, roof gutters, ornamental roof cresting, metal lath, ornamental stamped and spun work in zinc and copper.

The company have a large and comprehensive catalogue showing their complete line which they will be pleased to mail to architects, builders, contractors, and those interested in sheet metal building material.

Greenfield Mitre Box

The Goodell Manufacturing Company, of Greenfield, Mass., makers of the Goodell "Steel" miter box, realizing the demand



for a strong, accurate and well-made miter box at a reasonable price, are offering the Greenfield miter box, which

they believe will be found the most convenient and the best value for the money on the market.

It has a single piece iron bed and back, steel legs, and emery board to keep work from slipping.

The saw guides are quickly adjustable for any thickness back or panel saw, and when using the former, stops are provided to saw any depth. Rawhide is in the gib to prevent a panel saw striking metal.

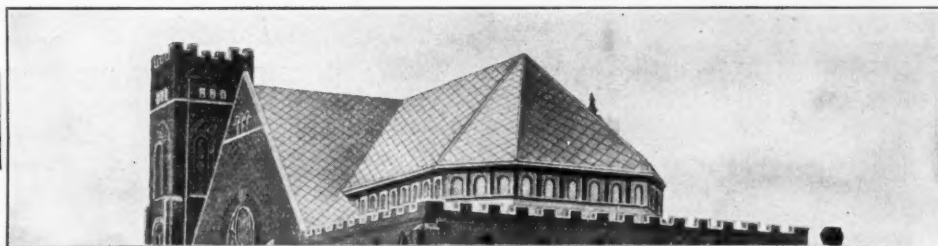
Provision is made for taking up any wear of the saw guides by adjustment of the screws on the inside of the posts.

Besides automatically locking at all of the regular angles, by simply turning a lever, it can be instantly set and locked at any angle. It is sold without saw or with a 24 by 4 back saw. Send for circular.

Hatched His Chickens in the Hay Mow

The H. M. Sheer Company, Quincy, Ill., received a letter the other day which tells a most novel story. The writer of this letter is Mr. John Waser, of Beecher, Ill.:

"I will tell you what I have done with this wonder of mine. A farmer had advised me to buy machine of another firm, which would cost more money than mine; but the reason they charged so much money for it, was, he said, because it was the leading machine on the market, but I didn't think so. I bought the machine I thought was the best. It was three weeks later, my neighbor burned out, the cause being the incubator lamp exploded. I went to him a few days after and told him I had a machine that would run in the hay mow of a barn, and I would guarantee I would not have to stay with the machine from start to finish, except to go in and attend to the eggs; so he bet me \$10 that I could not



Asbestos "Century" Shingle Roof—First Methodist Church, Coffeyville, Kansas: Henderson and Lumbe, Coffeyville, Architects; H. E. McCart, Coffeyville, Contractor

Asbestos "Century" Shingles

"The Roof that Outlives the Building"

The house-owner has to depend on his architect or builder for his decisions as to materials—and he is particularly open to suggestions that affect his pocket-book.

When Asbestos "Century" Shingles protect the house absolutely—are impervious to weather, proof against fire, free from accidental breakage, the most attractive roofing made—when they cost no more today than any other roofing regarded as first-class, and nothing thereafter for painting or repairs—can there be any doubt as to what roofing you shall recommend?

Asbestos "Century" Shingles are dense and elastic shingle-like sheets of asbestos-fibre cement. Made in three colors—Newport Gray (silver gray), Slate (blue black), and Indian Red, in numerous shapes and several sizes. Ask your Roofer for new quotations. Write for Booklet "Roofing 1908."

The Keasbey & Mattison Company, Factors
Ambler, Pennsylvania

FORD'S Galvanized RUBBER ROOFING

For 1909

The New Year will soon be here. With it is sure to come the greatest revival of activity in the building industry this country has ever experienced. All signs point to "big doings" next year in building.

This means there will be a strong and steady demand for high grade ready-to-lay roofing of the guaranteed quality found in:

"Ford's Galvanized Rubber Roofing"

WARNING This roofing cannot be bought of "mail-order" or "catalogue houses" and the public are warned against cheap imitations sold under names closely resembling our brand.



The Contractor Who Decides Now!

The Contractor and Builder who decides now to use "Ford's Galvanized Rubber Roofing" for every job requiring roofing will be sure of satisfied customers.

That unequalled quality which has made Ford's Galvanized Rubber Roofing the world's best will always be maintained.

The Guarantees We Give

The guarantees named below are positive and are Based on Actual Time Tests in all climates and under all conditions.

On 3-Ply

We give guarantee through dealers direct to consumer or contractor for **15 years** on Three-Ply.

On 2-Ply

We give guarantee through dealers direct to consumer or contractor for **10 years** on Two-Ply.

On 1-Ply

We give guarantee through dealers direct to consumer or contractor for **5 years** on One-Ply.

Send for Free Samples and Specify "Ford's Galvanized Rubber Roofing"

FORD MAN'F'G CO., 163 W. Wash. St. CHICAGO

do it, and it was done. The machine was set in the hay barn, with hay all around it. Just room enough for me to get in and out again, and the hatch was run successfully with no damage done to hay or barn. He will be one of your new customers this spring. Since that test my machine is very popular in this neighborhood, and you will have quite a few customers in this locality this spring. I expect my brother, Mr. Leo Waser, has sent to you for a machine by this time, or if he hasn't, he will send for one, as he witnessed the test also. Wishing you great success, I remain,

"Yours respectfully,

"JOHN WASER, Beecher, Ill."

Mr. Waser built his machine from plans and fixtures purchased from H. M. Sheer Company, Quincy, Ill. Their advertisement offering plans free is elsewhere in this issue. Look it up—it will pay you to send for them.

Ornamental Glass

On another page will be found a name that has long been synonymous with glass, that of W. H. Helmerich & Co., of Chicago.

Mr. Edward Helmerich, the father of the present proprietor, was one of the pioneer art glass manufacturers of America. He established an art glass business in New York City in 1848, and was in the forefront of the movement westward. In the period just preceding the Civil War the establishing of the industry in Cincinnati, Louisville, St. Louis, Kansas City, New Orleans and other cities of the west was largely due to his indomitable energy, skill as a craftsman and talent as an artist.

Mr. W. H. Helmerich, following the chosen profession of his father, early began his career as a glass worker and has aided in the development of the industry, having had charge

of various shops throughout the United States, and has since 1898 been established under the name of W. H. Helmerich & Co., of which concern he is now sole proprietor, having recently bought the interest belonging to his partner in business.

There is hardly an improvement in machinery and method of manufacture which does not in some manner owe its existence or improvement to either the elder or younger Mr. Helmerich. The making of plate glass, sandblasting, embossing, silvering, bending, staining, etc., all in their day received an impetus in their establishment.

Although Mr. Helmerich is still a young man, he has spent almost thirty years of his life in active service as workman and manufacturer, and his long experience has caused him to be much sought after as an authority on the almost endless varieties of glass and their adaptability to the purposes for which they are used.

As a critic of high art and a judge of light and color effects in ornamental glass Mr. Helmerich is without a peer.

A visit to the factory will show in process of manufacture all varieties of decorative art glass, memorial windows, beveled plate glass decorated in various ways, sawing out of holes and corners of all shapes, glass of all degrees of color and thickness, cutting of monograms and lettering, prism glass of all kinds, the setting of glass of all colors in various metals, such as copper, brass, zinc, lead, iron and bronze.

In the hospital supply department, all kinds of glass for sanitary purposes, such as table tops up to one and one half inches thick, shelving and towel bars, handles for various utensils, all sizes of glass wheels for electrical purposes, etc., may be seen. In fact, the uses to which glass is now applied are too numerous to record here; and, from the rapid advancement of the industry in the past decade, we would infer

An Eighty-year-old Tin Roof Prevents Destruction by Fire of All Surrounding Property

THE fire occurred at the White Lead Works of Wetherill & Brother, Philadelphia, Pa. The buildings indicated by the arrows were completely destroyed inside, but the roofs remained almost intact, smothering the flames and preventing the spread of the fire to the adjoining structures and lumber yards. The buildings have been covered with tin for upwards of eighty years.

WHEN these buildings were reconstructed "Target-and-Arrow Old Style" tin was selected for the roofs over other leading brands, the owners desiring to get the same kind of tin as that which had given such excellent service on the old roofs. "Target-and-Arrow Old Style" is the only tin now made by the old-fashioned, hand-dipped process—a process that has given this country its eighty-year roofs.

We have a book for architects or for the clients of architects called "A Guide to Good Roofs," which we send free on request.

N. & G. TAYLOR CO., Est. 1810
PHILADELPHIA



WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

The Sun Never Sets on **VULCANITE** *Roofing*



When You Experiment With
Experimental Roofings
You Lose. Buy a Roofing
With A Reputation

VULCANITE
Has Stood the Time
Test for Sixty Years

Vulcanite was first made in Europe sixty
years ago and is the most extensively
used roofing in the world today.



Why Vulcanite Excels

Because it is the best ready roofing in existence, it has been awarded Gold medals and highest honors at many Expositions. The same high standard of quality is maintained—and even increased.

Not cheapest at first cost, but cheapest in the end. "The Roofing of Ultimate Saving."

Vulcanite is a mineral rubber compound and is the highest priced material used in the manufacture of any ready roofing, but it pays us to use it because the quality is there.

An Honest Roofing

Following the unusual material is the exceptional manufacturing process. Vulcanite is subjected to enormous pressure which renders it very dense and firm, yet pliable and as tough as leather.

All the felt used for Vulcanite roofing is pure wool. No paper or other cheap filler is used. We manufacture it ourselves at our extensive mills in Franklin, Ohio, and therefore know what goes into it.

From start to finish it's an honest roofing.

Our Guarantees

Vulcanite Roofing will not freeze or crack in winter, will not crumble in dry weather—will absolutely refuse to leak in wet weather.

Backed by a responsible company, our liberal guarantees are always valid.

To dealers who sell it—to contractors who lay it—to owners who buy it, Vulcanite is absolutely guaranteed to wear for a great number of years.

It's the positive protection against an inferior roofing. If there's any loss it will be ours.



**Mail this Coupon
Today**

**Patent Vulcanite Roofing Co.
Chicago**

Franklin, Warren Co. • Ohio

VULCANITE Free Samples and Information

Fill out this coupon and receive Free Samples and booklet of roof information.

Patent Vulcanite Roofing Co., Chicago

Name.....

Address.....

City..... State.....

The Edwards Metal Spanish Tile



Manufactured from the best quality Worcester Grade Terne Plate, furnished Painted or Galvanized (galvanized after stamping) in size 10x14 inches. Write for descriptive "SPANISH TILE BOOKLET."

The Edwards Manufacturing Co.

"The Sheet Metal Folks"

Manufacturers of the most extensive line of Sheet Metal Building Material in the World.



Main Offices and Works,

401 to 417
Eggleston Ave.,
CINCINNATI, O.

Heppes NO-TAR ROOFING is Easy to Lay



—Because it is as flexible as rubber, though tough as leather and hard as flint.
—Because it lays smooth and skin-tight.
—Because we furnish simple instructions **free in every roll.**

—Because we supply a complete Roofing Book, with photographs, showing how to measure roofs and make chimney and wall flashings, well finished eaves, valleys, and gutters;

—How to cut the roofing to fit corners, angles, and odd spaces, without waste;
—Where to nail; how to cement laps;
—How to cover old shingle roofs;
—How to secure contracts, and how to make good money easily in the roofing business.

FREE SAMPLES FOR EXAMINATION AND TEST

Learn all about the roofing that is made of genuine asphalt without a trace of tar. Examine the coatings of mica and flint. Note the extreme toughness of the long-fibre wool felt. Get the facts about our wonderful process of waterproofing under intense heat and tremendous pressure.

Everything about this popular roofing is told in the free Roof Book. Send today.

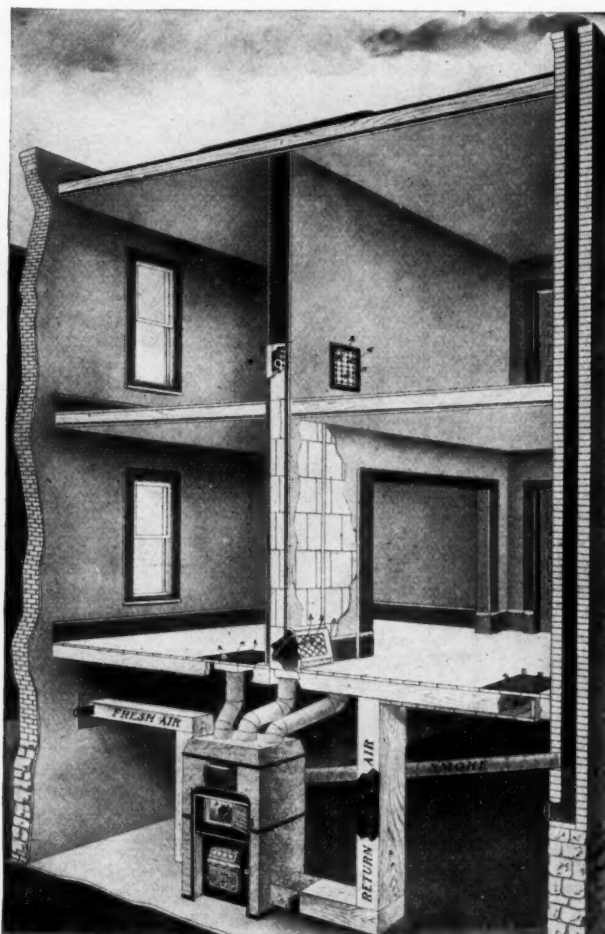
THE HEPPES CO. 652 S. 45th Ave.
CHICAGO

that the possibilities in this direction are practically unlimited.

Economic Heating

Probably no field of human endeavor has been given closer study, or passed through more experiment, than that of heating. Like every other problem having to do with the betterment of living conditions, there have been many fads and failures, while successes have been few.

The road from the open fireplace of "ye olden days" to the modern method of heating the home, covers generations of



experiment and embraces the expenditure of countless millions of dollars in arriving at the present perfected methods of warm air heating.

For either the farm or city home, time has demonstrated that warm air—not superheated air—is the best, and in fact, the only safe and sane system embracing all three necessary

Carpenters \$75 TO \$200 EVERY MONTH Selling Novelty Knives

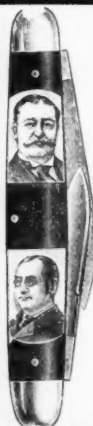
Made of best material, carefully tempered, tested and inspected—warranted for six months. Carpenters and pattern makers endorse them highly. Name, address, lodge emblems, photos of self, etc. beneath indestructible handles.

A Good Winter's Job

Big commission paid. Write quick for terms. Now is the time to take orders for Christmas. Send 2c for catalog.

NOVELTY CUTLERY CO.

90 Bar Street, CANTON, OHIO





FLOOR FINISH

is a TRIUMPH OF THE VARNISH MAKING ART

No other Floor Varnish or Floor Finish of a varnish nature is so tough, so elastic or so durable. It produces a smooth, handsome gloss finish unaffected by water or atmospheric conditions. It will not crack, chip or mark white.

If you are interested in a high-class article for floor work—a finish that is made to walk on and to stand the severe wear to which floors are subjected, write us for further information.

Our New Catalogue "D" listing our complete lines of "Nice" Varnishes, Fillers, Paints, Stains, Enamels, Colors, etc., will be ready very soon. We wish to send it to every reader of this paper who will write for it.

EUGENE E. NICE

272-274 So. 2nd St.
201-3-5-7 Spruce St.

PHILADELPHIA



The Truth About Roofing Guarantees

Several roofing manufacturers are offering with every roll of their roofing a Guarantee Bond, the Guarantee usually being made for 10 years.

The Guarantee specifies, however, that the roof must be painted every year or the Guarantee becomes void.

This in itself is an admission of poor quality. The ready roofing requiring an annual painting cannot be a good roofing. The manufacturers issuing these bonds know that their roofing could not last 10 years on its merits, therefore they insert the annual painting clause.

The principal purpose of a Guarantee Bond in connection with roofing is to draw the attention of the dealer or consumer away from the vital question at issue—the actual merit of the roofing itself. At first sight a Guarantee Bond may appeal to you, but on second thought it must stand out in its true light—that of really being a 10-year paint contract, advantageous in some cases to the manufacturer because he can sell you his paint, but always a losing proposition for YOU because a first-class ready roofing requires no annual painting.

Which is the better policy—to buy a ready roofing which will give you 10 years of service with no annual painting, or to buy a ready roofing that is going to require the trouble and expense of annual painting to make it last out 10 years, in order to fulfill the conditions of the Guarantee Bond which is in reality a flimsy selling scheme and an expensive one to the roofing buyer.

Every manufacturer of repute should, of course, guarantee against defective material, and this the Stowell Mfg. Co. does. Let us send you samples of Monarch Roofing and the opinions of people who have used and sold it for years.

Stowell Manufacturing Co.,

99 Culver Ave., JERSEY CITY, N. J.

PHILADELPHIA

KANSAS CITY

CHICAGO

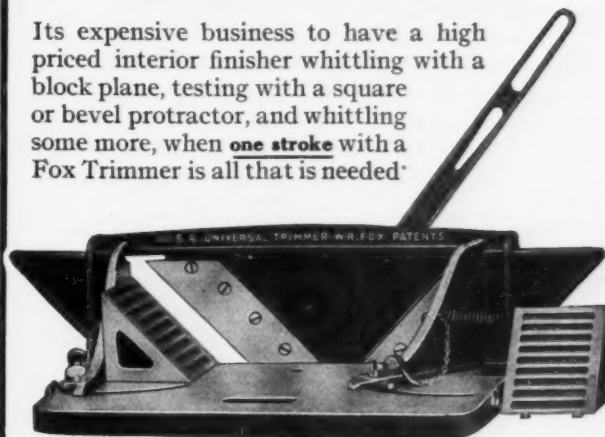
GET A

Fox Trimmer

FOR

Interior Finish

Its expensive business to have a high priced interior finisher whittling with a block plane, testing with a square or bevel protractor, and whittling some more, when **one stroke** with a Fox Trimmer is all that is needed.



We'll send our new Trimmer catalog on request

FOX MACHINE COMPANY

756-776 N. Front St.

GRAND RAPIDS, MICH.

You're in Good Company



when you specify the Patz System for store front construction. The leading architects and builders unite in endorsing it as the strongest, most rigid, and most artistic form of corner post and transom bar yet offered.

It gives the greatest possible amount of light and display room, and allows glass to be set from outside.

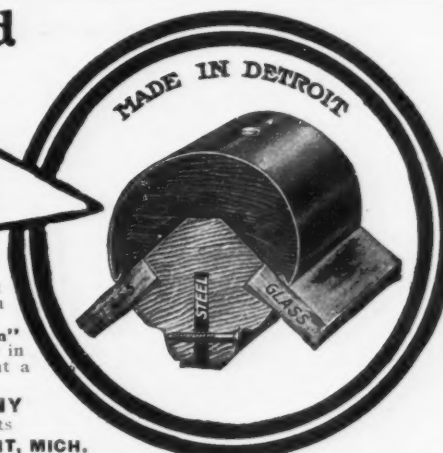
Our booklet "Modern Store Front Construction" explains and illustrates the different forms of bar in detail. No architect or builder should be without a copy. Write today.

DETROIT SHOW CASE COMPANY

Show Case Makers to Progressive Merchants

476-491 WEST FORT ST.,

DETROIT, MICH.





See Here! Mr. Carpenter,

That trademark is something for you to remember, for every good live man wants and will have first-class tools, and experience has proved that the Simonds is the world's best hand saw.

If you're more than an *average* man, you're looking for the best saw. Every hustler wants a saw *with an edge that holds*, and that's the Simonds, and you'll always know it by the trademark.

That trademark means that this saw is

MADE OF SIMONDS STEEL

made especially for the Simonds Saw in Simonds Mills.

By our patented process, we get the most evenly and correctly tempered saw on the market. No one else can quite make it, they don't know how. We are advertising, so *you* won't forget the Simonds trademark.

If you will only try the Simonds Saw, you will agree with us, and the hundreds of Carpenters already using them, that

Simonds Saws are The Best, And They ARE The Best.

Each Simonds Saw comes packed in a separate case. Remember the trademark when you buy. Every saw absolutely guaranteed free from imperfections in workmanship or material.

When you need a saw buy a Simonds. Let us know the kind and size you want and we will tell you the name of our nearest dealer and will also send you a free copy of "Simonds Carpenter Guide," a useful and instructive booklet.

Simonds Mfg. Co.

Fitchburg, Mass.

Chicago
San Francisco

New York
Portland

New Orleans
Seattle

essentials, viz.: health, comfort and economy. In this connection the wonderful record, established during the past twenty years, by what is known as the Hess Method of Warm years, by what is known as the Hess Method of Warm Air Heating, is worthy of close investigation by readers of the *AMERICAN CARPENTER AND BUILDER*.

Herewith is published a sectional view showing the operation of the "Leader" Hess furnace, as planned to heat a seven or eight-room house, showing position of furnace with fresh air and return air supply; floor and special sidewall registers below partition stack and wafer register above. On another page will be found an advertisement setting forth the remarkable offer which the Hess Warming and Ventilating Company is making in connection with the sale of their furnaces and furnace supplies.

That the Hess furnace is one that proves satisfactory in every way is testified to by a little booklet bearing the title, "These Bear Witness." This booklet contains *genuine* testimonials from every state in the union, together with names and addresses of hundreds of satisfied purchasers of the Hess furnace.

In connection with the testimonials appearing in the booklet, which is sent free upon request, is the following offer made by the company:

"A Furnace Free.—Will be given to any one who will show that any fictitious names or testimonials are contained herein, or that any testimonial has been paid for or obtained by any but fair means.

"Investigate as far as you choose and you will learn that we know the heating business from A to Z, and that we will give you a "square deal" and will make money for you.

"You can learn of our responsibility by consulting any wholesale house in Chicago—Bradstreet's or Dun's agencies, or the Corn Exchange National Bank, bankers, Chicago.

"HESS WARMING & VENTILATING COMPANY."

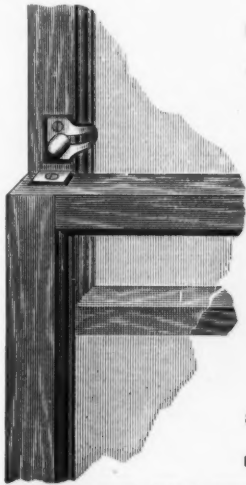
Being manufacturers, they sell direct at factory prices and ask no pay until the heating outfit they sell is installed and has proven to be satisfactory in every way. They "have to make good," and no one runs any risk in accepting their proposition. By furnishing them with a rough sketch of any building to be heated they will send free a special plan, which can be easily understood, showing exactly how to heat any building to the best advantage. This does not obligate you to buy of them.

Another special feature of their special selling plan is their great co-operative offer whereby every person buying their furnace can get his or her money back from additional sales that may be made without doing any canvassing or soliciting. This should prove of much interest to rural route carriers. The Hess Warming and Ventilating Company, 920 Tacoma building, Chicago, is a reliable, long-established house, thoroughly responsible, and the *AMERICAN CARPENTER AND BUILDER* can recommend them as being a company that will live up to the spirit and letter of every promise made. Write for their catalogues and special offer.

"U. S. Standard" Machinery

Two machines of very special interest to all concrete workers are manufactured by the Ashland Steel Range and Manufacturing Company, of Ashland, Ohio. They are the U. S. Standard concrete mixer and the U. S. Standard cement building block machine.

The U. S. Standard concrete mixer is a continuous mixer. There is no stopping to load or unload, or to pour in the water. It measures the ingredients accurately and automatically. It has two measuring boxes, one for cement, the other for sand, gravel or crushed stone, these boxes are filled automatically and stroked off at each trip of the carrier and their contents drop into one end of the mixing trough. This



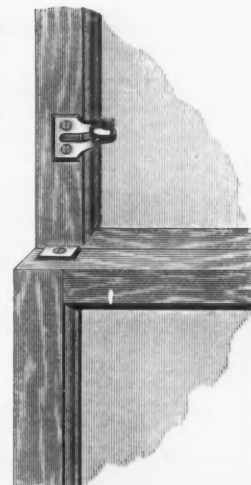
Ventilation Without Risk

IVES PATENT VENTILATING LOCK

A safeguard for ventilating rooms, allowing windows to be left open at the top, the bottom, or both top and bottom with entire security against intrusion, a permanent fixture easily applied and quickly operated, affording three times more protection to the window than the ordinary sash fastener.

THE H. B. IVES COMPANY
NEW HAVEN, CONN., U. S. A.

88-page Catalogue Hardware Specialties mailed free



You're Losing Money Every
Day You Wait

THE
Shrp-Shavr Safety Razor

At 25 Cents

is the quickest selling and biggest
business-building proposition you've
ever had a chance to get in on.



A complete Safety
Razor, with a
money-back
guarantee FOR 25

CENTS—an absolutely virgin field of customers to draw from—A CONTINUOUS SALE OF BLADES—a magnet that pulls a mass of new buyers into your store for shaving-soap, strops and all shaving accessories—and a clear profit of 50 per cent on every single one of the hundreds of razor sales—that's exactly what you're losing every day you delay in putting in a stock of Shrp-Shavr Razors.

We're spending thousands of dollars to create customers for you. Co-operate with us. Do your share and get your share. We're working tooth and nail for you in the magazines. Won't you take your part of the profits that are waiting for you?

Write your jobber, or if he will not supply you, order direct, and get your share of the Shrp-Shavr business.

PRICES

SHRP-SHAVER RAZOR with one blade, per dozen - - - - \$2.00
SHRP-SHAVER BLADES, 5 in a pkg., per dozen pkgs. - - - 2.10
SHRP-SHAVER STROPPERS, per dozen - - - - - .75

SHRP-SHAVER RAZOR COMPANY

70 Duane St.

NEW YORK CITY

**The Roof that Proves—Sun-proof and
Rain-proof: Needs no Paint or Repairs**



If you are interested in Roofs—the best and most economical Roofing to use, for all kinds of buildings—let us send you samples of "Rubber Sanded," and our 32-page booklet. Write today—before you forget it.

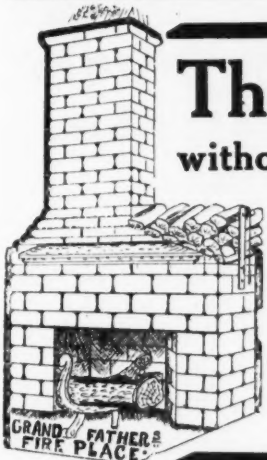
ASPHALT AND ASPHALT PAINT

The Pioneer Roll Paper Company are refiners of Asphalt and manufacturers of Asphalt Paint—which they supply direct from their factories in Los Angeles.

California Agents for North-
western Compo-Board Company.

PIONEER ROLL PAPER COMPANY

Address Dept. 21, Los Angeles, California.



The modern home is not complete without a Fire-Place which is its most attractive feature

You will be interested in our line of Patented Grates. They are guaranteed to heat from 8,000 to 10,000 cubic feet of space in zero weather. Request descriptive circular or send 7 cents to cover postage on large, handsomely illustrated catalogue of Artistic Wood Mantels.

We pay the freight. Contractors, kindly send your business card and we shall quote interesting prices.

Estimates furnished promptly on Tile Floors and Wainscoting, etc.

Heitland Grate & Mantel Company

No. 124 South Fifth Street :: :: QUINCY, ILLINOIS, U. S. A.

Luxfer Prisms

Turn Darkness *into* Light

Luxfer Prisms take the light of the sky and focus it to any part of the building.

Luxfer Prisms flood the dark places with daylight and render artificial light unnecessary.

The secret of the successful results that always follow Luxfer Prisms is in the sharp, accurately cut angles. Sheet prisms cannot give such results; they merely throw the light on one spot—Luxfer Prisms distribute it into every nook and corner. The light rays are not merely reflected; they are scientifically directed—bent—focused. They are drawn from the sky to places they would otherwise never reach.

Contractors Can Install Luxfer Prisms

Ninety per cent of the total installations are on our principle. This is appreciable evidence of superiority of the Luxfer system. It is testimony of the fact that architects and contractors are not risking their reputation by installing imitations.

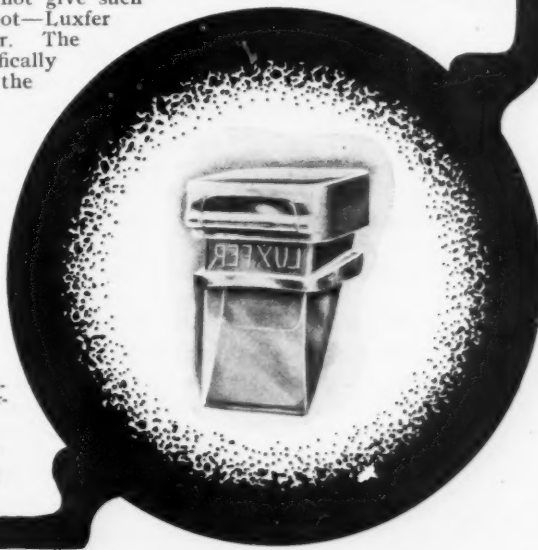
Wherever a dark room or basement exists there is a need for Luxfer Prisms. The rental value of each room is increased, while the utility of a daylight basement is unquestionable.

Contractors contemplating Luxfer Prisms can obtain ready-to-lay slabs made up to any specifications, at our shops.

Send for "Daylighting"

Drop a postal for our booklet—"Daylighting." Gives you an insight into the most advanced method of daylighting and makes interesting reading for contractors.

American Luxfer Prism Co.
1600 Heyworth Building Chicago



CARBORUNDUM



Carborundum Sharpening Stones cut fast and clean—put a keen lasting edge on a tool that you can't get so easily or quickly with any other stone.

THE CARPENTER

Who uses Carborundum sharpening stones need **never** be bothered with dull tools.

For Sale by Dealers Everywhere



**THIS LITTLE POCKET
STONE BY MAIL 15c.**

In neat paste-board case—a handy thing for any man to have. . . .

THE CARBORUNDUM COMPANY

Niagara Falls,

:

:

:

:

:

:

New York

through the split in the core, each block being cored, down to the four inch block, which has a half core on each side.

The U. S. Standard practically combines three machines in one. 1st. A machine to make heavy outside wall hollow blocks 8 inches, 10 inches, or 12 inches thick. 2nd. A machine to make thin blocks 3 inches, 4 inches, 5 inches, or 6 inches in thickness for outside veneering or inside partition walls. 3rd. A machine to make any size and thickness of block for a two piece or hollow wall system as rapidly and as well as any machine especially constructed for that purpose. All these changes are made with practically no loss of time.

The U. S. Standard machine is exceedingly simple in construction, having no gear wheels, springs nor clamps, thus being very durable and easily kept in repair, on adjustments while operating.

A Practical Floor Sander

The Henderson Electric floor sander, sold by the Marsh Company, 970 Old Colony building, Chicago, Ill., is one of the most practical machines on the market for finishing floors in apartments and residences. It is a light, convenient tool, composed of a small motor and a direct connected sandpaper drum, mounted on trunnions on a two wheel truck.

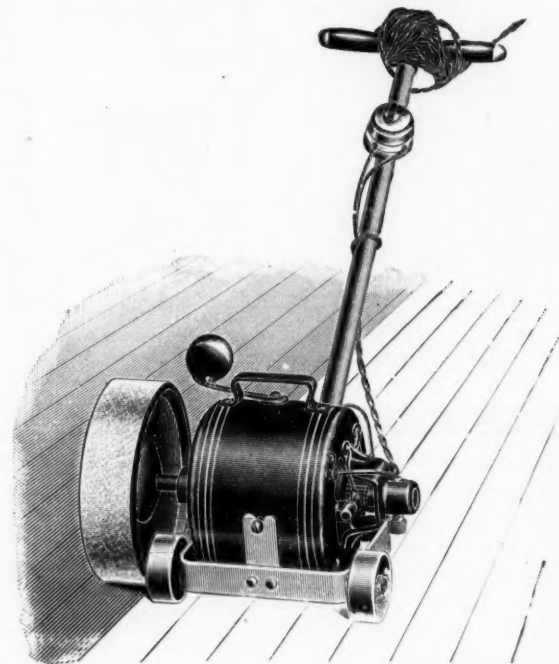
The great speed of the sandpaper (more than half a mile per minute) enables the operator to move briskly along, running the drum over each joining of the flooring, evening the joinings and polishing the floor ready for the varnish.

The great amount of time and labor required to sandpaper floors by hand has prevented their being finished in that way. This machine makes the machine sanding cheapest as well as the best way.

No other machine on the market can smooth a depression in the floor without cutting the floor down to the same level.

A floor needs very little done to it if that little can be done without the interference of the adjacent floor.

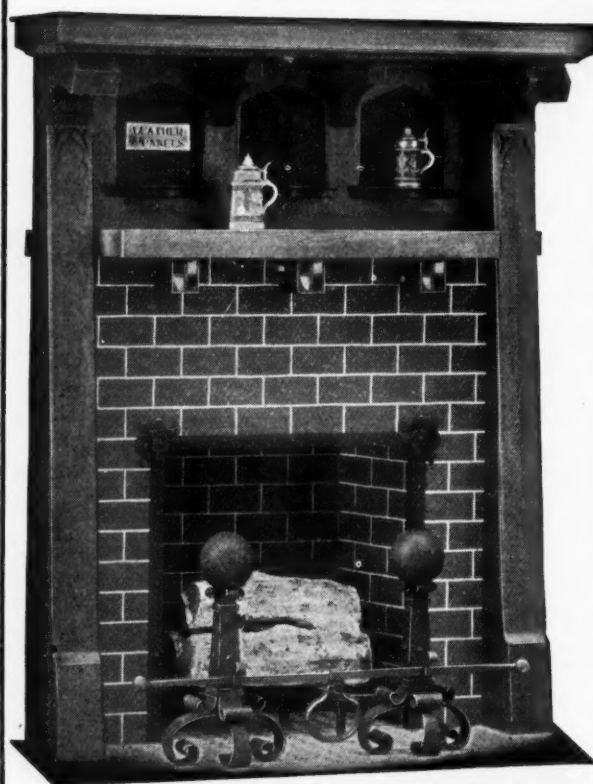
This machine with a narrow drum working in view of the operator and completely under his control, will level the



joinings and polish the floor without disturbing the undulations that are found in all floors.

The motors are very simple, requiring no electrical skill to run them, they have only two binding posts to which either wire can be attached.

They require 110 volts, the light current, so that wherever there is electric light there is the proper current.



No. 408.—Modern Mission Style 5 feet 11 inches high and 5 feet wide; heavy plan shelves, recessed leather panels; the brackets supporting main shelf are carved with Spanish Insignia, Foran-Vitrea tile hearth and facing. Hand-wrought Andirons of Romanesque design.

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"Cherokee"
"Kennesaw" } **Georgia Marble**
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is enlarged and brought up to date. Teaches you to estimate housework in an easy, rapid, accurate and practical manner. Gives actual cost of each separate part of the labor and material. Guards against errors and omissions. Based on actual experience, not theory. Quickest reliable method in use today. Now is the time to post yourself on this vital part of the business. **Price postpaid, \$1.00.**

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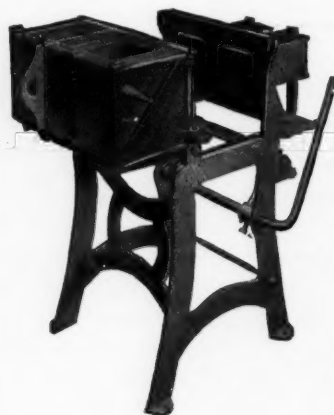
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MANUFACTURERS CONTRACTORS CONSULTING ENGINEERS

Good Machine Changed Hands

D. F. Detrick, the inventor of the Lightning concrete building block machine, has recently disposed of his invention to the Dayton Cement Machine Company, of Dayton, Ohio. This company is now placing this improved machine on the market, and reports a very encouraging increase in its use—showing that the practical concrete workers all over the country appreciate the value of a thoroughly good block machine.



This machine, the Lightning, is the only machine that has the automatic, self-locking doors. The face plate and the ends of the machine are hinged, presenting a perfectly true surface, and in preparing for successive blocks, these three parts come together and lock of themselves. Investigation and hard usage have shown that there is no wear in these locks. One company has made 50,000 blocks on one of these machines, and at the end the doors locked just as securely as before, and the same smooth surface with sharp corners was present. The face plates are easily removable, six of them being supplied with each machine, and twenty-five iron pallets and other accessories.

On account of the automatic self-locking mold the Lightning is the fastest, and the most labor-saving machine on the market. With it one man can turn out 200 blocks in ten hours, and do his own mixing. Greater variety of stones can be made on this machine in less time than any other machine on the market.

This machine has been designed to meet the requirements of all large and small builders. It is rapid, simple, and easy to operate. The machine makes blocks 8 by 8 by 16 inches long, quarters and halves, also 4 by 8 by 16, this size includes the mortar joint. One cubic yard of gravel and sand, and one barrel of cement will make 78 smooth or 73 rock face blocks.

These machines are sold under a triple guarantee: First, that machines, blocks or process do not infringe the patent of any other person or company; second, that machines will give satisfaction; the Dayton Cement Machine Company will refund any money paid if machine is not satisfactory in every particular; third, that all machines are free from flaws of defective workmanship, they will replace free of charge, within one year, any breakage caused by such defects.

Improved Block Machine

The Francisco Block Machine Company have greatly improved their machine with their new clamping device. It should appeal to every block maker on account of its speed and great variety. The L two-piece wall is the coming wall. This machine makes two 24 inch or three 16 inch L blocks at once. The late designs of terra cotta are something great, getting out of the rut of the common cement block. The terra cotta designs have a ribbed, tooled face with 2 inch panel joints. The mortar joint does not show, as the block can be formed with the rabbet joint. This work is easily and nicely done by this machine.

The advantages of the machine are greater than can be described. It makes lengths up to 48 inches, is adjustable in width up to 20 inches and in height to 12 inches. The 8, 10 and 12 inch block for width of wall are all obtained from the adjustments made on machine.

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**American Sheet
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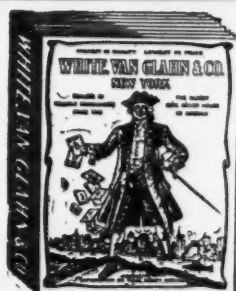


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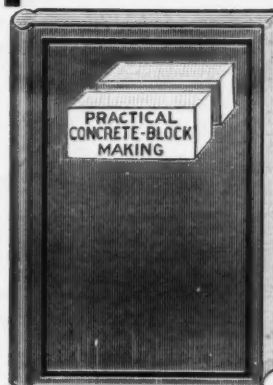
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The book tells about cement, concrete, blocks, molds and machines. How to select sand, gravel, crushed stone, how to find the right quantity of cement and sand to use, how to mix the aggregates, how to make the blocks and bricks, curing and seasoning, placing in wall, coloring, how to make wood molds for special ornamental work, rock facing, together with many practical hints and suggestions on how to obtain the best architectural effects, the standard specifications, and directions for testing the strength and durability of blocks.

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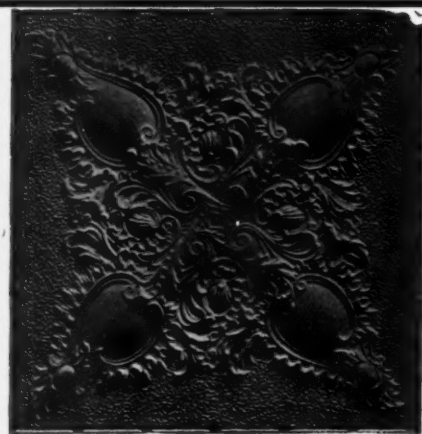
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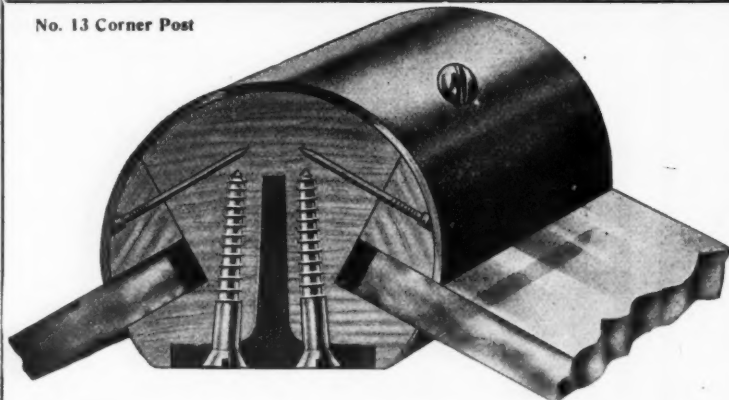
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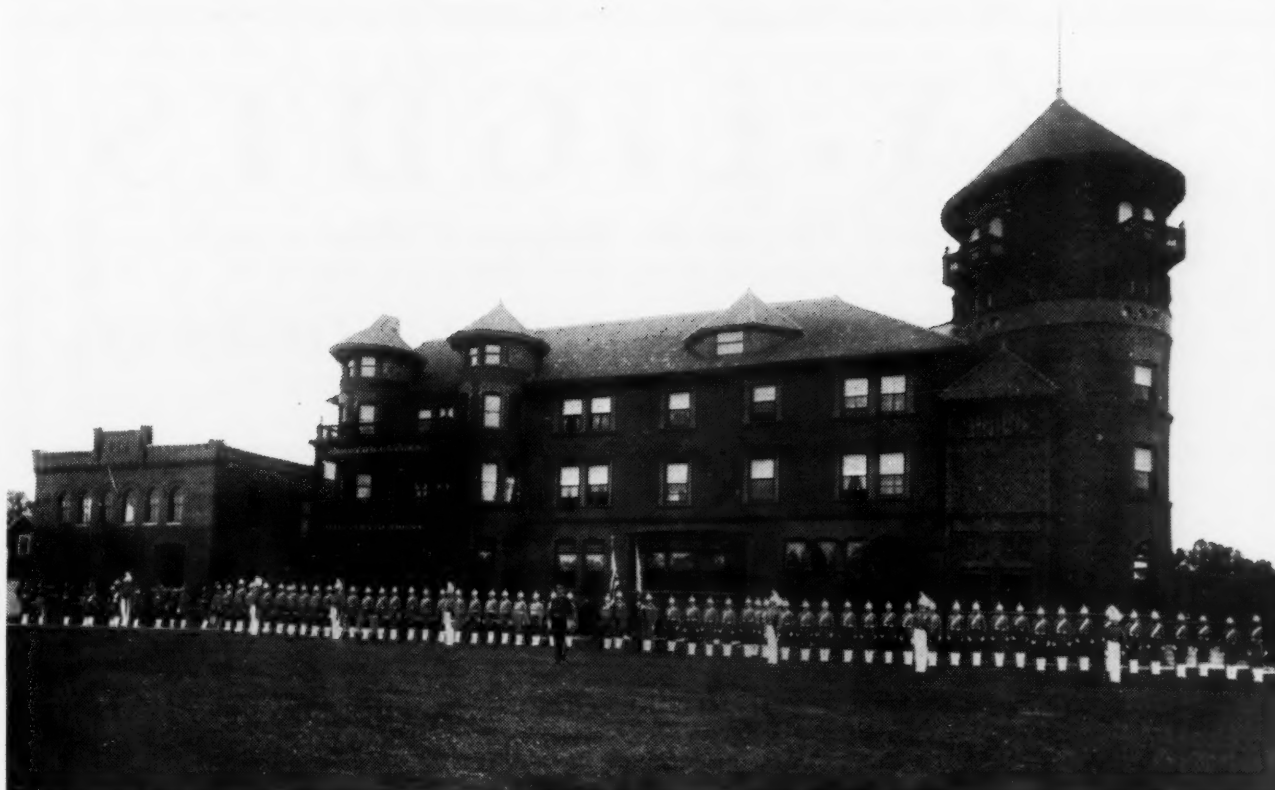
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Professional and Business Training. The military training is not allowed to encroach upon the regular work of the Academy, which is to impart a sound, practical education, fitting students for business pursuits or the professions, and developing all the better qualities of heart and mind.

Location. Situated twenty-three miles from Chicago in the beautiful suburb of Highland Park, noted for the culture and refinement of its residents, it is an ideal location in a natural forest 100 feet above Lake Michigan. It has all the advantages of the proximity to a great city without any of its evils, the students leaving Highland Park only when accompanied by teachers or by special permission of the parent.

Grounds and Buildings. The grounds at Highland Park comprise about fifteen acres and contain a fine grove and well kept lawns, and at Lake Geneva a beautiful park of over 100 acres with nearly a mile frontage on the lake. Locations, grounds and buildings are not surpassed by any similar institution in the country.

State Recognition. The Legislature of Illinois, at its session of 1889, passed a resolution authorizing the Governor of the state to take official recognition of the Academy. Its graduates are eligible to assignment as Brevet Second Lieutenants of the Illinois

National Guard. The work of the Academy is under the supervision of State and U. S. Army officers.

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Courses of Study. The Academy offers four distinct courses of study of four years each, preparing in a most thorough manner for either college, the Government academies or business. There is also a preparatory course and a school for small boys, Russell Hall, in connection.

Prizes. Through the liberality of friends of the institution, a number of prizes are offered for excellence in various departments. These prizes include a number of scholarships in several colleges and universities.

Amusements. The policy of the Academy favors amusements of the proper kind in the proper amount. The location of the institution, together with its additional beautiful grounds at Lake Geneva, constitute a never-ending source of enjoyment throughout the year.

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By permission, the institution refers you to the following patrons who have in the past, or now have, their sons at the Academy:

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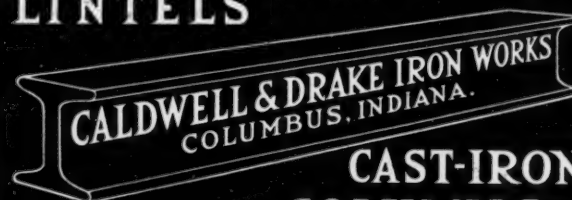
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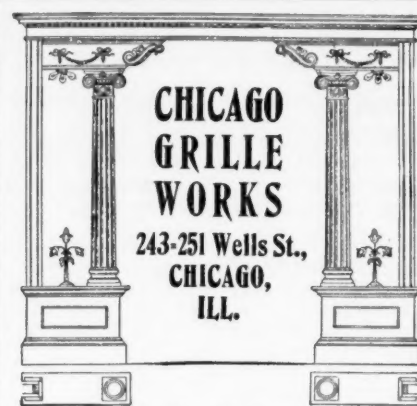
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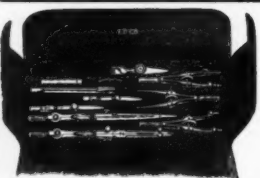
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The list below shows our present Surplus. The stock is good and exactly as represented. You can look it over before you pay us one cent—after it is delivered on the job.

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When the shipment reaches you, examine it carefully and see that it is exactly what you ordered. If you are entirely satisfied, you can pay us in 30 days from shipment; if not satisfied, notify us and we will take the shipment off your hands.

Soft Pine Doors—B Grade

O. G. The pine used in making these doors is soft and easily worked. Doors will not warp or shrink. Shown on page 40 of catalog.

Surplus Stock No. ACB-870.

48 Doors 2-6x6-6, 1 1/2-inch, 4 panel, each.....	\$1.14
42 Doors 2-6x6-0, 1 1/2-inch, 4 panel, each.....	1.10
32 Doors 2-6x6-0, 1 1/2-inch, 4 panel, each.....	1.40
570 Doors 2-4x6-6, 1 1/2-inch, 4 panel, each.....	1.35
426 Doors 2-4x6-8, 1 1/2-inch, 4 panel, each.....	1.40
942 Doors 2-6x6-8, 1 1/2-inch, 4 panel, each.....	1.40
32 Doors 2-0x7-0, 1 1/2-inch, 4 panel, each.....	1.64
42 Doors 2-4x7-0, 1 1/2-inch, 4 panel, each.....	1.65
128 Doors 2-6x7-0, 1 1/2-inch, 4 panel, each.....	1.66
58 Doors 2-8x6-8, 1 1/2-inch, 4 panel, each.....	2.09
24 Doors 2-10x6-10, 1 1/2-inch, 4 panel, each.....	2.60
24 Doors 2-6x7-0, 1 1/2-inch, 4 panel, each.....	2.50
36 Doors 3-0x7-0, 1 1/2-inch, 4 panel, each.....	2.80
60 Doors 2-0x6-0, 1 1/2-inch, 5 panel, each.....	1.29
66 Doors 2-4x6-6, 1 1/2-inch, 5 panel, each.....	1.45
110 Doors 2-8x6-8, 1 1/2-inch, 5 panel, each.....	1.51
20 Doors 2-0x7-0, 1 1/2-inch, 5 panel, each.....	1.73
38 Doors 2-10x7-0, 1 1/2-inch, 5 panel, each.....	1.84
22 Doors 2-8x6-8, 1 1/2-inch, 5 panel, each.....	2.24
16 Doors 2-6x7-0, 1 1/2-inch, 5 panel, each.....	2.60
10 Doors 2-8x7-0, 1 1/2-inch, 5 panel, each.....	2.64
66 Doors 3-0x7-0, 1 1/2-inch, 5 panel, each.....	2.85
66 Doors 2-0x6-0, 1 1/2-inch, 5X panel, each.....	1.36
50 Doors 2-0x6-6, 1 1/2-inch, 5X panel, each.....	1.55
28 Doors 2-4x6-6, 1 1/2-inch, 5X panel, each.....	1.55
46 Doors 2-4x6-8, 1 1/2-inch, 5X panel, each.....	1.56
12 Doors 2-4x7-0, 1 1/2-inch, 5X panel, each.....	1.80

Yellow Pine Doors—A Grade

O. G. Made from extra quality, kiln-dried Yellow Pine. Will not warp or twist. See catalog page 39.

Surplus Stock No. ACB-853.

38 Doors 2-0x6-6, 1 1/2-inch, 4 panel, each.....	\$1.46
42 Doors 2-6x6-8, 1 1/2-inch, 4 panel, each.....	1.60
110 Doors 2-8x6-8, 1 1/2-inch, 4 panel, each.....	1.60
30 Doors 2-6x7-0, 1 1/2-inch, 4 panel, each.....	1.85
38 Doors 3-0x7-0, 1 1/2-inch, 4 panel, each.....	2.05
60 Doors 2-0x6-0, 1 1/2-inch, 5 panel, each.....	1.42
28 Doors 2-0x6-6, 1 1/2-inch, 5 panel, each.....	1.60
20 Doors 2-6x6-6, 1 1/2-inch, 5 panel, each.....	1.63
16 Doors 2-6x6-8, 1 1/2-inch, 5 panel, each.....	1.66
36 Doors 2-8x7-0, 1 1/2-inch, 5 panel, each.....	1.98
12 Doors 3-0x7-0, 1 1/2-inch, 5 panel, each.....	2.13
42 Doors 2-0x6-0, 1 1/2-inch, 5X panel, each.....	1.50
72 Doors 2-0x6-6, 1 1/2-inch, 5X panel, each.....	1.70

Soft Pine Mouldings

All clear Stock. Surplus Stock Nos. given correspond with Universal Design Nos.

S. S. No.	Per 100 ft.
ACB-8000—6000 ft. Crown Mold, 3 1/4-inch.....	\$1.40
ACB-8003—21600 ft. Crown Mold, 2 1/4-inch.....	1.20
ACE-8007—2000 ft. Crown Mold, 1 1/4-inch.....	.80
ACB-8030—16000 ft. Bed Mold, 2 1/4-inch.....	1.00
ACB-8061—20000 ft. Cove Mold, 1 1/4-inch.....	.50
ACB-8063—20000 ft. Qr. Rd., 1/2-inch.....	.35
ACB-8064—20000 ft. Qr. Rd., 3/4-inch.....	.35
ACB-8095—10000 ft. O. G. Stops, 1 1/4-inch.....	.60
ACB-8096—10000 ft. O. G. Stops, 1 1/2-inch.....	.45
ACB-8097—10000 ft. O. G. Stops, 1 3/4-inch.....	.40
ACB-8281—20000 ft. Lattice, 1 1/4-inch.....	.40

Porch Columns

Made from Clear Grade Washington Fir. Shown in catalog on page 78.

Surplus Stock No.
ACB-1870.

each
436 Columns 4x4 - 8-0 \$0.52 1/2
194 Columns 4x4 - 9-0 .60
950 Columns 5x5 - 8-0 .75
720 Columns 5x5 - 9-0 .88
186 Columns 6x6 - 8-0 1.12
176 Columns 6x6 - 9-0 1.25

Porch Balusters

Made from Clear, Clean Stock. See page 80 of catalog No. 88.

S. S. No.	each
ACB-1881, 10000 Balusters 1 1/2x1 1/2-20-in. 2 1/2c	
ACB-1881, 10000 Balusters 1 1/2x1 1/2-24-in. 2 1/2c	
ACB-1882, 15654 Balusters 1 1/2x1 1/2-20-in. 4 c	
ACB-1882, 7200 Balusters 1 1/2x1 1/2-24-in. 4 1/2c	

Porch Newels

Made from Clear Grade Washington Fir. Shown on page 78 of catalog.

S. S. No.	each
ACB-1871, 542 Newels 4x4-4-0. .32c	
ACB-1872, 142 Newels 4x4-4-0. .30c	
ACB-1872, 206 Newels 5x5-4-0. .40c	

Porch Brackets

Made of 1 1/2-in. stock, clear and clean. Shown on page 79 of Catalog No. 88.

S. S. No.	each
ACB-1875, 4000 Brackets 10x12 4 c	
ACB-1875, 900 Brackets 12x14 4 1/2c	
ACB-1876, 1000 Brackets 10x12 4 c	
ACB-1876, 1200 Brackets 12x14 4 1/2c	
ACB-1877, 3000 Brackets 10x12 4 c	
ACB-1877, 2800 Brackets 12x14 4 1/2c	

Prices given on this page hold good until this Surplus Stock is sold. For complete specifications of goods listed, see our 1908-09 catalog. If you haven't a copy, cut off and send us the coupon.

In ordering goods from this bargain list, give Surplus Stock Nos., as specified.

SCHALLER-HOERR CO

CHICAGO

129 Douglas Station, CHICAGO, ILL.

Use This Coupon for Catalog

SCHALLER-HOERR CO.
129 Douglas Station
CHICAGO, ILL.

Send, without cost, your new 1908-09 Catalog, showing your complete line of Guaranteed Millwork and Building Material and explaining your Credit Plan.

Name.....
Street.....
City.....

CORTRIGHT



METAL SHINGLES



Never leak Never need repairs



THE EASILY LAID ROOF

residences, and other high-class structures? You can't touch propositions of that kind with wooden shingles; but Cortright Metal Shingles make the way clear. Write for our 56-page illustrated booklet—"Rightly Roofed Buildings"—it will interest you.

NOTE—Every genuine Cortright Metal Shingle bears the stamp "Cortright Reg. U. S. Pat. Off." Accept no imitations,

Cortright Metal Roofing Co. Philadelphia Chicago

Looks Easy Doesn't It?

IT IS EASY. Just as easy to lay a handsome *fireproof Cortright Metal Shingle Roof* as it is to lay flimsy wooden shingles. The same carpenter can do it, just as quickly and just as well as any slater or tinner.

No greater cost in wages than for wooden shingles; laid just as quickly; the metal shingles cost less than you might think, and *your* charge is on the basis of having laid, as indeed you have, the finest possible roof.

As a result of the transaction the customer is thoroughly pleased, your profit is more satisfactory than otherwise possible, and the finished roof will stand a monument and an advertisement to the man who laid it, for a lifetime. Why not get in line with the rest, bid on school houses, public buildings, fine



SHINGLES THAT LAST

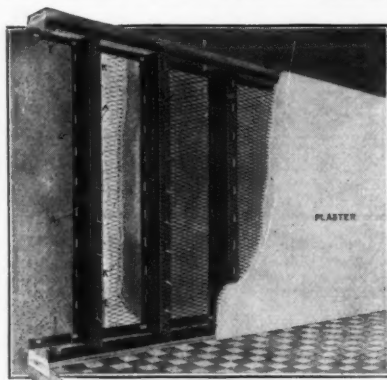
The National Sheet Metal Roofing Co.

Rain proof Durable SHINGLES Ornamental TILES

JERSEY CITY N.J. WALTER'S

Write for Catalogue, Samples and Prices

You Are Missing Something Worth While, Mr. Contractor and Builder, If You Do Not Know About



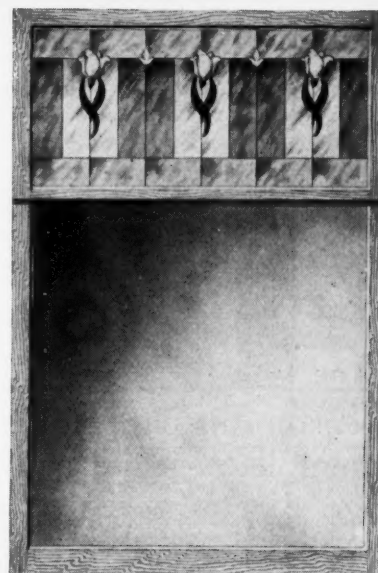
BERGER PRONG LOCK STUDS and FURRING
for use with expanded metal lath.

It is a system you ought to be posted about. It is both simple and effective. One man can hang the lath on the prongs and clinch them securely with the tap of a hammer. Berger Prong Locks save time and money. There's no wiring and the lath can't get away.

Write **TODAY** for catalog F-55-S, which shows how this system is applied to various classes of construction.

THE BERGER MFG. CO.
CANTON, OHIO

New York, Philadelphia, Boston, Chicago, St. Louis, Minneapolis, San Francisco, Atlanta



ART NOUVEAU

The Latest in Leaded Glass

We Will Mail FREE

a copy of our new door book No. 107F, if you haven't one. This book shows new patterns of Leaded Art

Nouveau Transom Lights. Special Lace patterns and 68 patterns of our new innovation

WIDE STILE FRONT DOORS

These are full 5-inch face and permit the use of any size lock.

Veneered Doors, Painted Doors, Store Doors and front stair work all shown in this book.

The Foster-Munger Co. Chicago, U.S.A.



Training Outweighs Long Service

Why do you see so many young men holding positions of command over men much older—every-day scenes of long service, untrained employees at the beck and call of younger men who occupy the big positions?

It is a case of **Training vs. Long Service**—with the odds all in favor of the trained man. It is **training** that holds the balance of power today in the industrial world. In the office, in the shop, in the factory, or on the farm, wherever you go the world over, it is the men with trained brains that hold the positions of command and high salary.

I. C. S. Training has accomplished more in securing promotion for ambitious men than any other force in the world. Thousands upon thousands of men in all walks and circumstances of life, from mine laborer to office manager, have secured advancement through this means to positions of the highest responsibility.

If you want to secure promotion make the same start that these men did; mark and mail the coupon. Get out of the untrained rut. Qualify for a better salary. Protect yourself against servitude in old age. Become an expert in your chosen line of work. Make your start **now** by using the card enclosed. You need not leave home. You lose no time from your work. You have no books to buy. Everything is arranged to suit your individual needs. But remember the first step must come from you—you must mark and mail the coupon. This puts you under no obligation to incur any expense. It is simply a request for the free explanation and advice of our experts. If you really want a better salary, make a definite attempt to get it—use the coupon **NOW**.

International Correspondence Schools

Box 910, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position before which I have marked **X**.

Architect
Arch'l Draftsman
Contractor & Build.
Building Inspector
Structural Eng.
Struct'l Draftsman
Plum. & Heat. Con.
Supt. of Plumbing
Form. Steam Fitter
Plumbing Inspect'r
Heat. & Vent. Eng.

Estimating Clerk
Bridge Engineer
Civil Engineer
Surveyor
Mechanical Eng.
Mechan'l Drafts'n
Stationary Eng.
Electrical Engineer
Electrician
Elec.-Light. Supt.
Elec.-Rail'y Supt.

Foreman Machinist
Sh.-Met. Pat. Drfts.
Mining Engineer
Textile Expert
Bookkeeper
Stenographer
Ad. Writer
Window Trimmer
Illustrator
Civ. Service Exams.
Chemist

Name _____

Street and No. _____

City _____

State _____



Ballargeon Bldg., Seattle, Wash. Saunders & Lawton, Architects.
Equipped with Mullins Fire-proof Windows.

seamed metal with no soldered joints in frame, sill or sash. They cannot warp or buckle and are not affected in any way by heat contraction or expansion.

Mullins Fire-proof Windows are manufactured under supervision of Underwriters' Laboratories, Inc., according to the latest specifications of the National Board of Fire Underwriters and every window is inspected, approved and labeled with their official label. Send for descriptive catalog.

W. H. Mullins Company

214 Franklin Street,

Salem, Ohio.

Exposed Sides Protected

The back and side of this attractive Seattle building are fitted with Mullins Fire-proof Windows. The owners, following the example of others in this progressive city were anxious to obtain the sure protection, permanent satisfaction and lower insurance rates that always follow the installation of

Mullins Fire-Proof Storm-Proof Dust-Proof Windows

which are famous for their perfect construction and fire-baffling qualities.

Mullins Windows are entirely lock-seamed metal with no soldered joints in frame, sill or sash. They cannot warp or buckle and are not affected in any way by heat contraction or expansion.

Mullins Fire-proof Windows are manufactured under supervision of Underwriters' Laboratories, Inc., according to the latest specifications of the National Board of Fire Underwriters and every window is inspected, approved and labeled with their official label. Send for descriptive catalog.



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From The Foundation To The Last Brick

We are experts in producing designs, illustrations, zinc etchings, half tones and color plates, for all advertising purposes.

We print folders, circulars, booklets and catalogues.

In fact, we handle your advertising from start to finish.

You do yourself an injustice by not conferring with us on your next order for engraving and printing.

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Dearborn Engraving Company
ENGRAVERS PRINTERS

1322 Wabash Avenue, Chicago, Ill.

Phone Monroe 1631

Write for estimates

Cut, Ground, Beveled,
Mitered and Stained

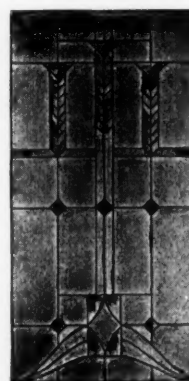
GLASS

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W. H. HELMERICH & CO.

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Art Leaded Glass

Makers of Memorial Figures and plain Decorative Windows, also residence work in L'Art Nouveau styles and beveled plate in metal copper finish. Designs submitted on application. *Grand Prix Louisiana Exposition.* Correspondence solicited. Established in 1883.

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COMPANY**

57 to 63 Illinois St. CHICAGO, ILL.
(Near Franklin)
Telephone North 218



This Catalogue and a *"Little"* Money Builds a *"Big"* House Now!

FROM
MANUFACTURER
DIRECT

ECONOMICS OF MILLWORK BUYING

Every important economic movement, marking the progress of commerce during the past twenty-five years has been centered upon one bull's eye—the elimination of the middleman. This has been and is true the world over.

Competition, in solving the problem of marketing manufactured products, has naturally sought the avenue that does away with paying somebody an unnecessary profit between the producer and consumer.

Realizing the opportunity that existed for establishing the business of selling high-grade or **"Quality"** millwork—"From the manufacturer direct"—the **Chicago Millwork Supply Co.** was established as the pioneer concern of its class, that took for its foundation **"Quality"** at a price that means no middleman's profit paid by the consumer.

In this day and age the **Economics of Millwork Buying** mean that every owner, prospective owner, contractor, builder and jobbing carpenter should thoroughly investigate the possibilities and advantages of buying their construction material direct from the manufacturer.

TO THE OWNER

To the owner buying direct this means immense saving and that means **Interest earned in advance** on any building investment. It means better and guaranteed qualities in all the material because the manufacturer is directly responsible to the owner for what he sells and ships.

TO THE CONTRACTOR

Every contractor and jobbing carpenter owes it to himself, as a shrewd business man, to make his iron clad policy to buy **direct** whenever possible. It not only saves you middlemen's profit but it enables you, **under our system**, to expand your business without investing great additional capital and helps you estimate on a basis that means more and bigger contracts, executed with more satisfaction to yourselves and customers.

The buying Direct policy keeps you in close touch with the outside markets and broadens your business experience.

OUR SPECIAL EQUIPMENT

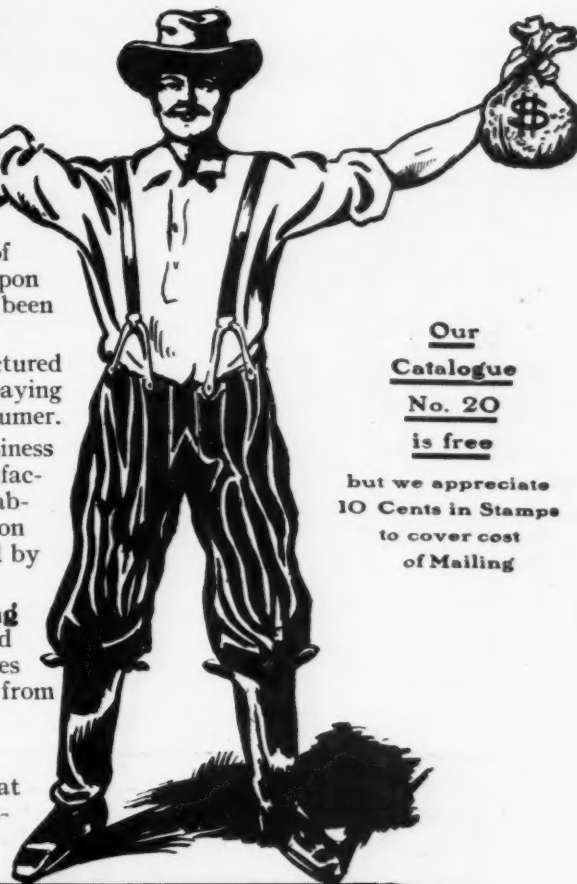
The equipment of the **Chicago Millwork Supply Co.** consists of our immense warehouse located at Chicago, **"The Great Central Market"** supplemented by two large factories at the base of supply. We carry immense stocks, fill orders for all stock stuff without delay and offer you superior service and best qualities at lowest prices. We, as manufacturers, have to keep ahead of the times and constantly on the alert in producing what we sell, and you get the benefit.

Estimates cheerfully furnished
Write for our catalog No. 20 today

Chicago Millwork Supply Co. 236-242 W. 20th St.
Chicago

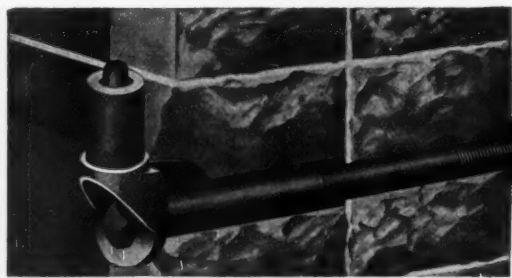
Our
Catalogue
No. 20
is free

but we appreciate
10 Cents in Stamps
to cover cost
of Mailing



FROM
MANUFACTURER
DIRECT

FROM
MANUFACTURER
DIRECT



THE OLD RELIABLE

Zimmerman's Anti-Sag Strap Hinge

HIGHEST AWARD JAMESTOWN EXPOSITION

Cannot sag or twist—easily attached to Wood, Brick, Stone or Cement by standard bolt or lag screw.

For use on Heavy Barn Doors, Gates, Fire Doors, Fire Shutters—every place where a perfect hinge is desired to carry a heavy load without sagging or breaking down.

Made in 22 sizes, from six inches up to six feet. The strongest hinge ever offered to the trade—stays where put. Far superior to hinge made by blacksmith and at one-half the expense.

ASK YOUR JOBBER OR WRITE US

HARRY ZIMMERMAN & CO., Patentees, - 25 Wood Street, Fremont, Ohio

Eastern Selling Agents, G. F. S. ZIMMERMAN & CO., 4 Arch Street, Frederick, Md.

Health Ceilings Health Side Walls



They might well be termed as above, for they do not gather moisture, are not filled with poisonous coloring matter and cannot fall, crack or become unsightly. Eller's Steel Ceilings and Side Walls have for many years been the standard of quality—look for the trade-mark—it means perfection in every feature.

Eller Manufacturing Company
Canton, Ohio

60,000 columns at an average of \$5.00 each, or 6,000 at \$50.00 each, gives you an idea of the annual capacity of our plant.

We own the largest factory building in the world devoted exclusively to the manufacture of high grade column and porch work.

Send for catalogue M19 of columns, and M29 of sun dials and pedestals.

HARTMAN - SANDERS COMPANY

Sole Manufacturers of

KOLL'S PATENT LOCK JOINT COLUMNS

Elston and Webster Aves., CHICAGO, ILL.

Eastern Office, 1123 Broadway, NEW YORK CITY.

The Best Columns for Porch, Pergolas or Interior Use.

DOW
Wire & Iron Works
(Incorporated)
LOUISVILLE, KY.

IRON LINTELS

Beams, Angles, Anchors, Hangers,
Ornamental Cast Iron Fronts and Stairways.



A Roll
Ready for Use

Union Fibre Co., 72 Fibre Ave., Winona, Minn.

Dear Sirs: Send Samples and Specifications (for sheathing and sound-deadener) of the new linen building felt—LINOVELT—“38 times as effective as BUILDING Paper.”

(Sign your name and let us prove it to you.)

LINOVELT is Made by the Makers of "LITH"—the Cold Storage and Refrigerator Insulation

Not Expensive

500 Million Yards in Use
Adds less than 1 per cent
to cost of buildings.

The Philip Carey Company
Distributors,
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Branches & Warehouses
in all large cities in the
U. S., Canada and Mexico

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

\$619⁰⁰

PAYS FOR ALL THE LUMBER and MILLWORK FOR THIS FINE HOUSE



Including Architect's Plans, Blue Prints and Complete Specifications FREE

The above offer is an example of the tremendous saving on material for any size and style of house, if you buy direct from us. Any Carpenter or Contractor can take our Free Book of 44 Complete Plans and figure from our Catalog the exact cost of material for any house there shown.

We will furnish all the material needed to build this handsome home complete with porches and art windows, as shown above, for only \$619. This includes all the Millwork and Lumber to build this house, together with correct and easily understood Plans, Blue Prints and Specifications. See Floor Plans in space at the right. Undoubtedly the greatest house bargain ever offered. Our prices save you at least half. A house like this is easily worth \$3,000 when finished. We carry a tremendous stock and can ship promptly, at lowest prices in America.

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Quality, Safe Delivery and Satisfaction Guaranteed

We sell over a million dollars' worth of building material a year. We have no traveling men—sell only for cash. We are the only large sash, door and lumber concern selling direct to the consumer. Our low prices will save you big money. We have customers in every locality. Ask any of them about our goods, our methods, our prices, our guarantee, our prompt shipment. Your local banker or any bank in Davenport, Iowa, will tell you we are responsible. See our rating in Dun and Bradstreet. If goods are not satisfactory we guarantee to refund money and pay freight both ways. You take no risk. Why pay double?

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No other concern can duplicate our prices. We control our sources of timber supply and operate the largest building material plant in the world. We ship direct from our own warehouses and lumber yards. All our material is guaranteed up to the official grades of the Sash & Door Manufacturers' Associations. Our lumber is first air-dried, then put through a scientific drying process. There is no "come apart" to our work.

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Write for this great Free Millwork and Building Material Catalog, which pictures, describes and puts a bargain price on over 5,000 different building material items. Saves you the huge profits of the retail dealer. Offers everything needed to build, remodel or repair, at an actual saving of 50 to 75 per cent. May save you hundreds of dollars. An endless variety of styles. Latest architectural ideas. Many illustrations in colors. Gives freight rate to your nearest shipping point. A postal brings you this valuable catalog by return mail—FREE. Write now.

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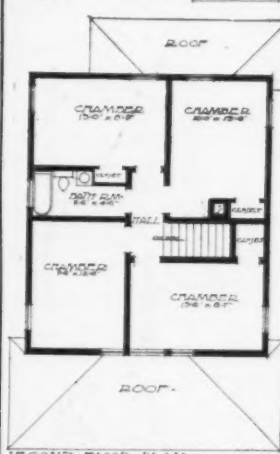
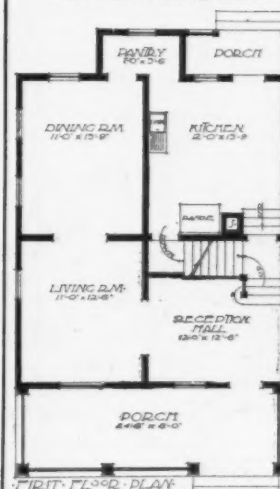
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448 Federal Street,

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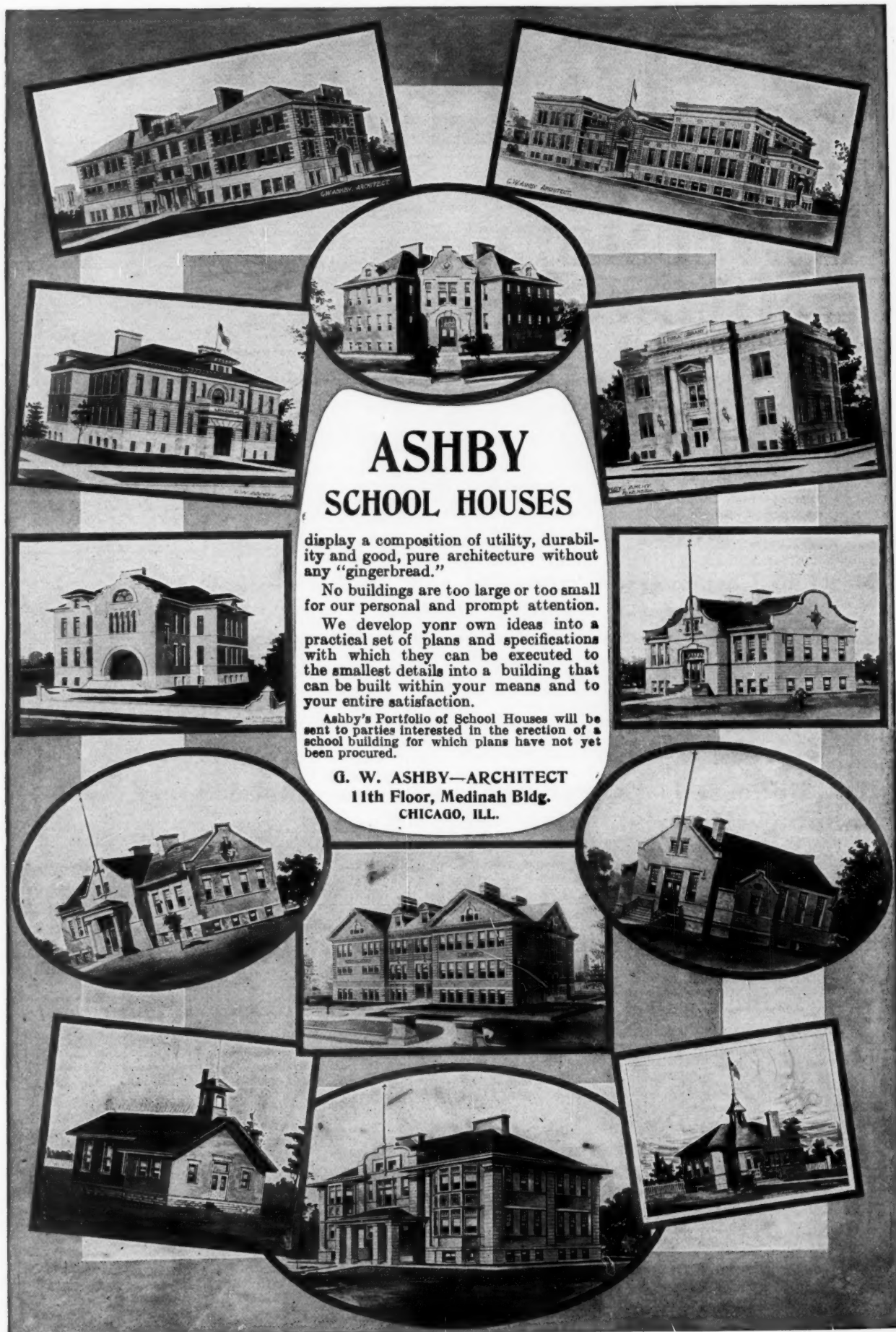
FLOOR PLANS OF HOUSE
See Fine Arrangement



\$1667.00

builds this 9 room house complete, as per itemized prices below.

Excavating.....	\$ 25.00
Foundation.....	225.00
Lumber.....	415.00
Carpenter Work.....	360.00
Plastering.....	225.00
Mill Work.....	204.00
Painting.....	125.00
Hardware.....	45.00
Tin Work.....	20.00
Chimney.....	23.00
Total	\$1667.00



ASHBY SCHOOL HOUSES

display a composition of utility, durability and good, pure architecture without any "gingerbread."

No buildings are too large or too small for our personal and prompt attention.

We develop your own ideas into a practical set of plans and specifications with which they can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

Ashby's Portfolio of School Houses will be sent to parties interested in the erection of a school building for which plans have not yet been procured.

G. W. ASHBY—ARCHITECT
11th Floor, Medinah Bldg.
CHICAGO, ILL.

On Trial At Our Expense

We'll send you a complete heating outfit (Warm Air Furnace) for \$25.00 to \$75.00 less than you can buy from dealers, and deliver it at your station. Freight Prepaid.

You may place the purchase price in the hands of your local banker, who will hold it for sixty days while you test the heater.

If the test is not satisfactory you may return the goods at our expense and have your money back, we to pay the cost of removal and freight charges to Chicago.

Ask us more about it. There's money in it FOR YOU. Booklet and heating plans free.

**Hess Warming and
Ventilating Company**
920B Tacoma Building - - CHICAGO

Wet Process Concrete Blocks

By the Pettyjohn System

The manufacturing of Concrete Blocks is rapidly nearing perfection, but the up-to-date manufacturer must use modern machinery and employ improved methods. Three features are important in perfect block making:

WET PROCESS

FACE DOWN

DAMP CURING

These splendid features are combined in the new Pettyjohn Invincible Machine, and no other. Made in three lengths, 16-inch, 24-inch and 40-inch. Tandem Invincible makes two blocks at once. Price \$65 and up. Single Invincibles, \$35 and up. Sold on trial always, guaranteed to give satisfaction or money refunded.

With our TRIPLE TIER RACKING SYSTEM green blocks can be stacked three high direct from machine with inexpensive home-made rigging. This economizes space, reduces off-bearing distance, and above all insures slow, even, damp, perfect curing and bleaching. Plans and blue prints free to customers.

Send for our latest edition of "Stone Making" (just published), a book of valuable data for the block maker—FREE.

THE PETTYJOHN COMPANY, - - - 634 No. Sixth St., Terre Haute, Ind.

The United States Standard Cement Building Block Machine

EXCELS ALL OTHERS:

- 1st For correctness in mechanical construction.
- 2nd For strength and beauty of blocks.
- 3rd For adaptability to an almost endless variety of styles of blocks.
- 4th For unequalled speed.
- 5th For moderation in price.
- 6th It combines a complete Block Machine and a complete Veneer Machine in one.

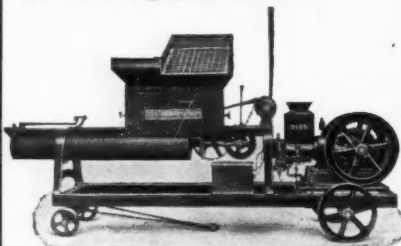
Every word of the above is true, as applied to our 1908 model. But in our lately revised 1909 model we have achieved a degree of perfection which is a marvel to all who see it. Nothing like it on the market for completeness. Be sure and look us up at the National Cement Users Convention, in Cleveland, Ohio, January 11th to 16th, 1909.



Write for
Catalog A

The U. S. Standard Concrete Mixer

- 1st Automatically measures each ingredient with a stroked off measure.
- 2nd It correctly proportions these ingredients.
- 3rd It thoroughly mixes them.



If interested write for our Catalog A.
Manufactured by
The Ashland Steel Range & Mfg. Co.
ASHLAND, OHIO.
Government and Foreign Sales Department,
B-21 Produce Exchange
New York, U. S. A.

Take It—Try It And You'll Find It will Do All we claim



It makes Face Down, Side Face, Two Piece Wall and Veneer Construction. No limit to size, number of shapes or variety of designs. Wood pallets. A very wet mixture can be used, which makes hard, dense and non-absorbent blocks. Absolutely no loss from chipped edges or cracked blocks.

\$40.00

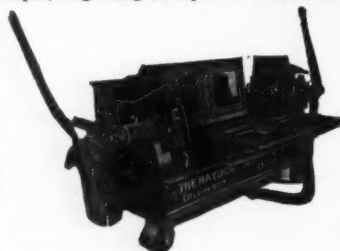
The Dunn Combination Cement Block Machine

You can prove these facts for yourself on the machine in your own home town, before you accept it. The machine will stand on its merits. That's probably the way you would like to buy. That's the way we are willing to sell.

Send for our illustrated catalog. It shows what the machine is and just how it works

W. E. Dunn & Company
339 Grand Avenue Chicago, Ill.

All blocks made face down; automatic in action; great strength; easy to operate; very rapid; large range, simple in construction.



The Hayden Down Face Machine
Two sizes—24-inch and 32-inch

NEW YORK AND FOREIGN REPRESENTATIVE
H. W. REMINGTON
19 SOUTH STREET, NEW YORK, N. Y.

HAYDEN Concrete Block Machines and Mixers

The Standard of Excellence

Send for Catalog "M" Today

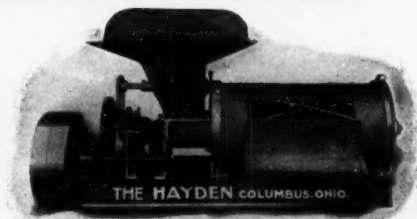
The Hayden Automatic Block Machine Co.

Manufacturers of High-Grade Concrete Block Machines, Power Mixers, Porch Moulds, Engines, Cars, Pneumatic Tamping Outfits.

Concrete Plants Equipped Throughout

112 West Broad St., Columbus, Ohio

The Hayden Concrete Mixer mixes sand, gravel or crushed stone — any proportion. Maximum capacity 70 yards per day. Water arrangement perfect. Uniformity and thoroughness absolute



View of mixer on steel skids, showing clean out door open. Also mounted on trucks with power.

BUY
DIRECT

Colonial Columns

SAVE
50 PER
CENT

DIRECT FROM FACTORY TO CONTRACTOR

HERE ARE TWO REAL BARGAINS

No. 2216
Primed
No. 1.

OUR COLUMNS ARE THE BEST ON THE MARKET. WE SELL DIRECT TO CONTRACTORS, CARPENTERS, BUILDERS AND HOME OWNERS ALL OVER THE UNITED STATES AT FACTORY PRICES, POSITIVELY SAVING YOU 50 PER CENT OR MORE, INCLUDING THE FREIGHT. WE SHIP EVERYWHERE AND GUARANTEE SAFE DELIVERY. OUR CATALOG CONTAINS HUNDREDS OF BARGAINS ON GLAZED SASH, DOORS, INTERIOR FINISH, MOULDINGS, STAIR WORK, PORCH WORK, GRILLES, ETC. SATISFACTION AND SUPERIOR GOODS ALWAYS GUARANTEED

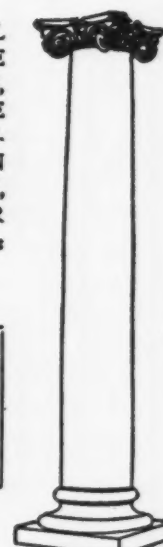
WRITE TODAY FOR OUR MILLWORK CATALOGUE

Stock	Sizes	No. 2216
6x6,	8 Ft.	\$1.72
8x8,	8 Ft.	2.06
8x8,	9 Ft.	2.35
10x10,	8 Ft.	2.99
10x10,	9 Ft.	3.83

LUMBER

DIRECT TO CONSUMER AT
SAW MILL PRICES. SEND
US YOUR LISTS FOR PRICES.

Stock	Sizes	No. 2217
6x6,	8 Ft.	\$2.47
8x8,	8 Ft.	2.81
8x8,	9 Ft.	3.08
10x10,	8 Ft.	3.79
10x10,	9 Ft.	4.14

No. 2217
Primed
No. 1.**Bayer Bros. Sash & Door Co.**

Dept. C., ST. LOUIS, U. S. A.

Wood Carving

Let us tell you about some advanced ideas in wood carving for doors and interior finish. We are the largest exclusive wood carving concern in America. Every piece of work we turn out is original—striking—attractive. Excellent designs in our catalogue, or special designs if you wish.

SEND FOR LITERATURE

Chicago Wood Carving Co.

627 North Halsted Street, Chicago

Hand - Power Elevators

☞ We furnish the iron work complete with plans and instructions for building the platform and overhead frame; your carpenter can do the rest.

YOU SAVE ONE-THIRD

☞ Our data sheet, sent on request, helps you tell us what you want.

☞ We also manufacture Electric and Power elevators for any service.

☞ Estimates cheerfully furnished.

HOLLISTER-WHITNEY CO., QUINCY, ILLINOIS*Porcelite*

RESULTS COUNT

We Have

20 Years Record of Satisfied Customers

AN ENAMEL and UNDERCOAT

For Every Purpose

Is Made By

THE THOMSON WOOD FINISHING CO.
PHILADELPHIA, PA.

We Should Like To Send
You Our Service Records.

A POSTAL BRINGS THEM TO YOU.

Enamels

Don't! Tamp Your Life Away “ “ Money “

WHY?

Make 100 Strokes to produce a block
Make 100 Blocks a day

WHEN

You can produce a block with one stroke
You can make 2000 Blocks a day on
a machine that don't cost any more.

We could not show cut of Multiplex here and do it justice. But our catalog "R" illustrates and explains it in every detail.

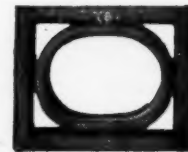
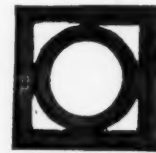
You can make all styles and sizes as well as chimney block on the one machine.

These statements are not advertising statements, we can prove it. Write

for catalog "R" and you will readily see the reason. Our chimney block is the only one of its kind.

THE MULTIPLEX CONCRETE MACHINE CO.

744 Ohio Building
TOLEDO, OHIO.



"TRUS=CON" JOIST HANGERS

Strongest

as shown by
University Tests.

Made from OPEN
HEARTH STEEL.

SAVES cutting and weaken-
ing of timber. ∴ ∴ ∴

SAVES labor in installation.

LOWEST FIRST COST.

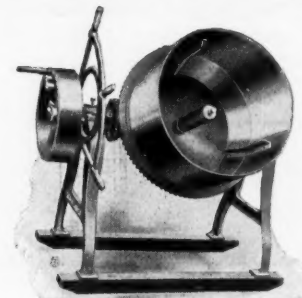
All styles and sizes for Brick
and Concrete Walls, Steel and
Wooden Beams. ∴ ∴ ∴

WRITE TODAY FOR PRICES
To SPECIALTY DEPT.

TRUSSED CONCRETE STEEL CO.
624 Trussed Concrete Bldg., DETROIT, MICH.



"Standard" Concrete Machinery "Machines of Quality"



Handles wet or dry mix; requires little power to
operate; mixes bath perfectly in one minute; self-
cleaning; easily charged and dumped; 3 sizes.

Send for catalogue giving complete line of Mixers
and Brick Machines.

South Bend Machine Mfg. Co.

General Sales Offices

40 Dearborn Street Chicago, Ill.



17,800 POUNDS PRESSURE

THE Movable Automatic Core that moves down with the pressure of the machine is entirely a new feature. It is a money-saving feature that practical concrete men cannot very well afford to overlook.

This is not the only feature that puts the Sanford right in the lead. The 17,800 pounds of pressure that is put on every block made is a point of advantage that cannot—**positively cannot**—be talked away. Right on the block comes the pressure—just as much force at close of day as in the morning. Speaking of this feature "Concrete Block" says: "It saves labor charge and has the additional advantage of being uniform throughout the day's work."

The Sanford is the **only** face-down hollow block pressure machine in existence. Sold strictly on its merits it will make 300 to 500 veneered hollow blocks or 400 to 600 veneered slab blocks every 8-hour day. Cores a 6-inch, 8-inch, 10-inch and 12-inch single wall block, 6-inch and 8-inch high face veneer and hollow blocks, two-piece metal tie, two-piece Header bond System, same machine.

As a duty to your clients—to your pocket—to your common sense, you should look thoroughly into this proposition. The free book is just as convincing as it is interesting and proves the advantages of the Sanford are of more real benefit in practice than would appear. A postal to-day is all that's necessary.

The Sanford Concrete Machinery Co.

1645-1647 Nicholas Bldg., Toledo, Ohio

"BRADFORD PRESSED BRICK" "BRADFORD REDS"

Trade-Mark—Sept. 12, 1905—July 15 1907



Size 2½"x4"x8½"

Positively Unequalled for Richness of Color
Perfection of Shading and Uniformity of Size

MANUFACTURED EXCLUSIVELY BY

Bradford Pressed Brick Company
BRADFORD, PA.

Standards, Romans, Moulded and Ornamentals
Selected Brick for Mantels

Are YOU Willing To Be Shown



WHY —THE— DAYTON CEMENT BLOCK MACHINE EXCELS

All other Block Machines in the following particulars:

Speed: Simplicity: Accuracy:
Range of Work: Ease of Operation:
Durability: PRICE.

This can't be told in this small space. But if you will write us, we shall try to show you.

DAYTON CEMENT MACHINE COMPANY

Successor to
Detrick Cement Machine Company

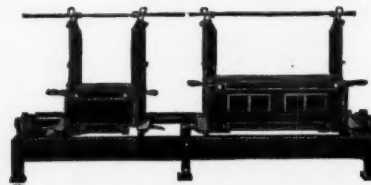
118 W. McPherson St.,

DAYTON OHIO

If you are going to open a Concrete Block Plant, don't handicap yourself by starting wrong. Get a reliable machine—one with a reputation back of it.

HERCULES CONCRETE BLOCK MACHINES

ARE NOT EXPERIMENTS



They have the reputation of years behind them; the world's best engineers endorse them, because

They are Unlimited as to Production

They Enable you to Supply Superior Grade of Stone

They are Simple in Construction

Easy to Operate

Send to-day for beautifully illustrated catalogue, showing our complete line of Concrete Machines. IT WILL PAY YOU.

CENTURY CEMENT MACHINE CO

273 Main St. West,

ROCHESTER, N. Y.

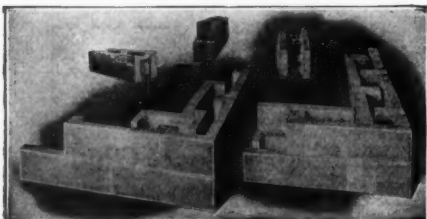
SYSTEMATIC CONCRETE MIXER (1909)

High Wheels, High Grade, Low (triple) Hoppers—Low Price. The talk of the trade for practicability and advantages—**SUPERIOR**. Outside hoppers only 42 in. from ground. Cement hoppers hold over barrel of cement. Horizontal drive—no vibration. 24 in. wheels in front, 36 in. rear. No springs or chains used. Can lock proportion boxes. All materials drop together for a thorough mix. No materials incased—they are before your eyes all the while. 32 forward and reverse mixing flights. Saves 50 per cent over hand mixing and mixes 25 per cent better than any other style mixer. No experiment. Scores of these Mixers in operation. Send for our Systematic MIXER Catalog, just off the press, regarding our 1909 Model—30, 60 or 125 yd. capacity. Specially adapted for Sidewalk, Street, Bridge and Reinforced Work and Block and Brick Plants. "It Leads."

CEMENT MACHINERY CO.,

Jackson, Michigan, U. S. A.

Let us figure with you on a Block or Brick Machine or anything, as we make everything in Concrete Machinery.



THE FRANCISCO BLOCK MACHINE

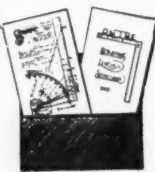
builds all of the walls shown in cut, down face, wet process, coarse material, with no extra expense, with the exception of cores for wall No. 3 and No. 4, using the same pallettes for all 5 walls. You also make on our No. 4 machine the 32 inch block, 24, 20, 16 and fractional block, using the same pallettes; also all of your long stone to 5 ft., the 8, 10, 12 inch block for width of wall, with no extra expense for parts or face plates. The machine is adjustable in width to 20 inches, in length to 5 ft., in height to 16 inches. Send for new catalog "G." **AGENTS WANTED.**

FRANCISCO BLOCK MACHINE CO., 338 North High Street, Columbus, Ohio.

On the Square



every builder should have my little works and be a constant reader of the "Cement World," the leading paper of its kind published.



STEEL SQUARE POCKET BOOK.....\$.50
FOLDER (in case with pockets)......25
DESIGNING (finely illustrated)......50
CEMENT WORLD 1.00

All for \$1.75. \$2.25
DWIGHT L. STODDARD, Author of "Steel Square Pocket Book," 328 W. Raymond St., Indianapolis, Ind.
Send for other Combination Offers.



"The Miles" Improved Block Machines

Make the Best Block Face down, Adjustable, Rigid, no Springs or Cogs to bother. Wet mix used. Prices right. Ask about our Metal Lined Universal Adjustable Sill, Cap and Step Mold.

The Miles
Mfg. Co.
(Inc.)
109 Cortland
Street,
Jackson, Mich.

See our display at Cleveland, Jan. 11th to 14th, and at Chicago, Feb. 18th to 24th.

The Coltrin Concrete Mixers

CLEVELAND

JAN'Y 11-16

SECTIONS 26-49

WILL BE SHOWN AT

CHICAGO

FEB'Y 17-25

SECTIONS 31-45



COLTRIN IN BLOCK PLANT AT BELOIT, KANSAS.

The Knickerbocker Company,
Jackson, Michigan.

Beloit, Kansas, May 31, 1908

Gentlemen:—I think the Coltrin is hard to beat for mixing concrete, and it's a money saver for any one who is in the concrete business. I use two men with the Mixer and can put down from 60 to 70 square yards of walk per day, and it is better mixed than any set of men can mix it with the shovel.

Respectfully yours,

J. W. TRON.

The Knickerbocker Company,
Jackson, Michigan.

Beloit, Kansas, August 19, 1908.

Gentlemen:—Am sending you photo of my Coltrin Mixer at work in my shop making cement blocks, am pleased to state your Mixers are hard to beat for all kinds of work.

Respectfully yours,

J. W. TRON.

SHIPPED [ON TRIAL TO ANY PART OF THE
UNITED STATES

MANUFACTURED EXCLUSIVELY BY

THE KNICKERBOCKER COMPANY
JACKSON, MICHIGAN

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NOTICE TO ADVERTISERS

New copy, changes and corrections for advertisements must reach office of American Carpenter and Builder, 185 Jackson Boulevard, Chicago, not later than January 20 in order to insure insertion in February number.

INDIA OILSTONES



COMBINATION STONE

For carpenters' use. One side coarse for fast work on dull tools; the other to set a keen working edge.

THE MARK OF QUALITY

No Matter
What the
Tool, There is
an India to
Sharpen It.



Will Cut
Metal on
Which a File
Will Slip.

ON EVERY INDIA STONE

We will send a descriptive price list and sample stone to any carpenter who will ask for them.

Write us! We want to show you what India Oilstones are—and why they are superior to other oilstones.

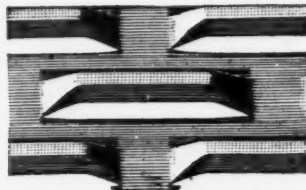
Sole Selling Agents

Pike Manufacturing Co.

PIKE, N. H. Dept. 6.

NORTON COMPANY, Worcester, Mass., Mnfrs.

SYKES METAL LATH



The lath that is positively different to anything else made; different because it combines more good features.

Cup lath is the only Expanded Metal Lath that can be plastered on either side—cannot be applied wrong because both sides are alike.

We make two kinds—Sykes Expanded Cup Lath, and Sykes Trough Lath. Both are supreme for their own purpose.

The top illustration shows Trough Lath, bottom cut depicts Cup Lath.

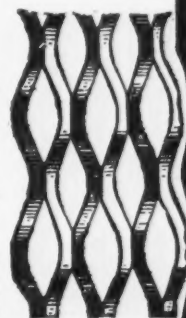
NO PICKLED LATH

Sykes Lath is absolutely guaranteed not to have been pickled in an acid bath. This means that the weight and thickness is not reduced and is less susceptible to rust. Requires no furring out from studs because it is self furring.

It has been approved by U. S. Government and by leading architects, carpenters and builders throughout the country. In fact, when we say it is the best ever made we are simply stating a proven fact.

Samples and prices mailed upon request.

Sykes Metal Lath & Roofing Co.
NILES, OHIO

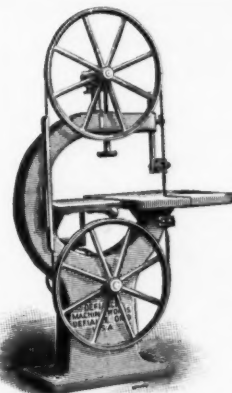


"DEFIANCE"

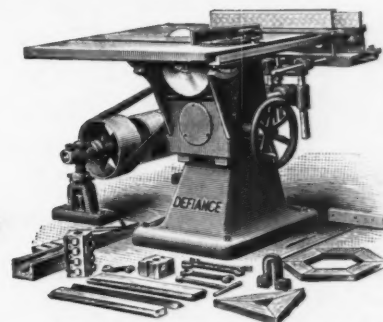
Wood-Working Machinery

Invented and Built By

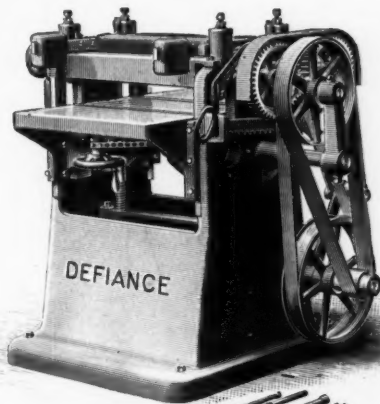
The Defiance Machine Works
Defiance, Ohio



28" Band Saw



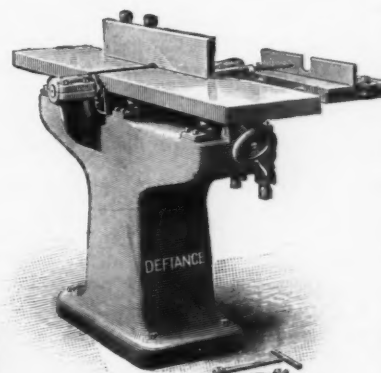
No. 8 Variety Saw—Cut-Off and Rip



24" Single Surface Planer



No. 1 Knife Balancing Machine



12" Hand Planer with Boring Attachment

These machines are of the highest grade, built in large numbers and sold at moderate prices

..Write for Particulars..

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

This is an advertisement—and something more—a frank talk to two kinds of men. It should be read through by men already in the concrete industry—and it is even more important to the man who is about to engage in the business

ADDRESSED PARTICULARLY TO THE VISITORS AT THE CEMENT SHOWS



THE most important thing to do in any business is to look around occasionally to see what the world outside of our ordinary horizon is doing. That is why it pays business men to travel; that is why it pays to attend the annual cement shows.

We do not ask you to read this with the idea of selling you anything. Of course, we are in business to make sales, but the purpose of this writing is to ask you to do a little thinking—from your own point of view, all the time—of a few facts about the concrete industry of the United States during the last five years.

We have been in the business ten years as contractors—and were in it last year bigger than ever; and from what we see today we will be doing more concrete contract work in 1909 than ever before, by a wide margin. We do not mention this for any other purpose than to show you that we believe in your side of the game. We have made money every year in doing concrete work just as you and thousands of other business men are doing.

Perhaps it would be well to say that we have two branches of business; one, the manufacture of every kind of tool and machine needed in the concrete industry from a hand tool to a big power mixer, and another, devoted to taking contracts for doing all kinds of concrete work, making a specialty of paving sidewalk and curb and gutter, in which we started ten years ago.

You can hardly overestimate the advantage that these two branches of our business are to one another and indirectly to you, as a concrete worker. It makes every Miracle machine a practical proposition from the start. While we do not forget the debt the concrete industry owes to science and the schools of engineering, we only call a product or a machine a success when it has stood the test of use. We often wait six months or a year with a new thing before we give it our endorsement, because we cannot afford to back anything in concrete that isn't right.

We know this pays in the long run; and that brings us down to what may perhaps lay us open to the charge of "tooting our own horn."

No good business man will object to that, we feel, provided we say only what is the indisputable truth.

How does that interest you, do you ask?

That is just what we want to bring out—you naturally do not care about how another man has built up a business, unless it will give you some aid in your line. It is only in this respect that we can ask you to put your time in reading this against our money in putting it in the American Carpenter and Builder for your attention.

The Cleveland Cement Show is the fifth national gathering of cement users in the United States. We were at the first one at Indianapolis, and have been making exhibits ever since.

You who attended the first show, look about and see how many of the pioneers in the concrete machinery business you will see. How many of the names carry you back to the top floor of the Claypool Hotel? How many were in the group photograph that the early ones sat for on the roof of that famous hostelry? You will remember the Miracles, and perhaps one or two others.

It has been a fierce game sometimes—this struggle for supremacy—a sure-enough "survival of the fittest," and in that

way alone has the concrete industry been built up to its present marvelous proportions, contrasted with only five years ago. It has not been all sunshine for the strongest and most successful of concrete workers, and it has seen literally scores of manufacturers of concrete working machinery forced out of business. The best alone could fill the requirements.

Out of this sifting of the fit from the unfit, we have emerged stronger than we had anticipated. The Miracle Pressed Stone Co. started with a factory 20 by 40 feet, working two men. It now occupies factory floor space of 45,000 square feet, being indisputably the largest factory devoted to concrete machinery in the world.

How we did it is a long story. Let us confide to you that it was not always easy. It would, perhaps, not have been possible without our practical concrete working experience. Those who remember our beginning will recollect that we started with the Miracle Double Staggered Air Space Building Block. We believed then, and our experience since has fully justified our early opinions, that no other block is as good for all purposes, as economical in material, as safe for crushing strength, considering the amount of material, as satisfactory to lay in the wall and as free from objections of every kind when the walls are completed—frost and moisture proof—none to compare with the Miracle Block.

This claim for supremacy was challenged by makers of many block machines, alas, now out of business. We manufacture and are in position to sell single air space, continuous air space block machines at bargain prices.

Do not expect us to make invidious comparisons. Our advice is to buy the best.

We next led off the concrete sewer pipe mold manufacture. These Miracle molds are sold all over the civilized world and Korea and in Mexico, in South America and in South Africa you will see Miracle sewer pipe and drain tile molds turning out a product that is winning unstinted praise from engineers and the public.

But we cannot particularize further. We build six different sizes and styles of concrete mixers, suitable for a small plant as well as for the largest jobs.

We build reinforced fence post machines, automatic tile machines, both of those being machines that have cost thousands of dollars to develop—before they were placed on the market. Our line of ornamental concrete molds is the largest, including the best standard models. Our burial vault and tombstone monument molds are strong features and big money makers. Our catalog should be in the hands of every concrete worker that can read English—over 750 illustrations—full of practical information.

Now to the point of all we have said about Miracle; it is this: Don't you think it good business policy for you to do business with a concern that has demonstrated its ability to serve the concrete working public? Could we do the business, if we did not make good?

When you select a line of concrete working machinery see to it that the concern manufacturing it will stay in business long enough to supply you with the necessary repairs.

We ask: Is there not a legitimate basis for our claim on your business?

**Miracle Pressed Stone Co.,
Minneapolis, U. S. A.**